

# Waimanalo Teen Project

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Architect

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Civil Engineer  
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## UBC INFORMATION

MEETING FACILITY - TYPE V-N - 6122 S.F.			
SPACE	AREA S.F.	OCCUP. TYPE	OCCUP. LOAD
1. ADMIN. OFFICES	1036	B-2	11
2. COMMUNITY OFFICES	310	B-2	4
3. CLASSROOM	941	B-2	48
4. RECREATION ROOM	1383	A-3	93
5. RESTROOMS	361		
6. KITCHENETTE	156		
7. STORAGE & JANITOR	120		
8. ARCADE & CORRIDORS	1656		

MAINTENANCE BARN - TYPE V-N - 3040 S.F.			
SPACE	AREA S.F.	OCCUP. TYPE	OCCUP. LOAD
1. MECHANICS SHOP	1200	H-4	24
2. AUTO BODY SHOP	1200	H-4	24
3. FARM EQUIPMENT STORAGE	624	B-1	
4. MISC. OUTSIDE STORAGE	16	B-1	

## INDEX OF DRAWINGS

T-1 LOCATION MAP, PLOT PLAN, UBC INFORMATION  
T-2 LIST OF ABBREVIATIONS, ETC.

**CIVIL**  
C-1 EXISTING SITE PLAN, LEGEND, ABBREVIATIONS  
C-2 NOTES  
C-2A NOTES  
C-3 SITE/UTILITY PLAN  
C-4 GRADING/DRAINAGE PLAN  
C-5 EROSION CONTROL PLAN  
C-6 EROSION CONTROL DETAILS & OTES  
C-7 PROFILES - ACCESS ROADWAY, SEWER FORCE MAIN, & GRAVITY SEWER  
C-8 PROFILES - WATER LINES  
C-9 CROSS SECTIONS  
C-10 SEWAGE PUMP STATION PLAN & DETAILS  
C-11 MISCELLANEOUS DETAILS  
C-12 MISCELLANEOUS DETAILS  
C-13 WATER DETAILS  
C-14 GATE DETAILS

**ARCHITECTURAL**  
A-1 FLOOR PLAN, DETAIL PLANS - MEETING FACILITY  
A-2 FLOOR PLAN, ROOF PLAN, REFLECTED CEILING PLAN - MAINTENANCE BARN  
A-3 ROOF PLAN, REFLECTED CEILING PLAN - MEETING FACILITY  
A-3A FINISH FLOOR PLAN, COUNTER PLAN AND DETAILS - RECREATION ROOM  
A-4 EXTERIOR ELEVATIONS - MEETING FACILITY  
A-5 EXTERIOR ELEVATIONS - MEETING FACILITY  
A-6 EXTERIOR ELEVATIONS - MAINTENANCE BARN  
A-7 EXTERIOR ELEVATIONS - BARN DOOR DETAILS - MAINTENANCE BARN  
A-8 BUILDING SECTIONS - MEETING FACILITY  
A-9 BUILDING SECTIONS - MEETING FACILITY  
A-10 BUILDING SECTIONS, WALL SECTIONS - MAINTENANCE BARN  
A-11 WALL SECTIONS - MEETING FACILITY  
A-12 WALL SECTIONS - MEETING FACILITY  
A-13 PARTITION TYPES, DETAIL SECTIONS, ROOM FINISH SCHEDULE  
A-14 DOOR SCHEDULE, DOOR DETAILS  
A-15 WINDOW SCHEDULE, WINDOW DETAILS  
A-16 INTERIOR ELEVATIONS - MEETING FACILITY  
A-17 INTERIOR ELEVATIONS - MEETING FACILITY  
A-18 INTERIOR ELEVATIONS - MEETING FACILITY  
A-19 INTERIOR ELEVATIONS - MAINTENANCE BARN, MISC. ELEVATIONS  
A-20 ROOF, FLASHING, SKYLIGHT DETAILS  
A-21 MISC. DETAILS, MILLWORK

**STRUCTURAL**  
S-1 GENERAL NOTES & TYPICAL DETAILS  
S-2 TYPICAL LIGHT GAUGE STEEL FRAMING DETAILS  
S-3 TYPICAL FRAMING DETAILS, FOOTING SCHEDULE & TYPICAL FOOTING SECTION  
S-4 FOUNDATION & ROOF FRAMING PLANS - MEETING FACILITY  
S-5 SHEAR WALL & CONSTRUCTION JOINT LAYOUT - MEETING FACILITY;  
FOUNDATION & ROOF FRAMING PLANS - MAINTENANCE BARN  
S-6 SHEAR WALL SCHEDULES, TYPICAL SHEATHING DETAILS, AND MISC. WALL ELEVATIONS  
S-7 MISCELLANEOUS FOOTING SECTIONS & STEEL COLUMN DETAILS  
S-8 TYPICAL TIMBER TRUSS & STEEL TRUSS ELEVATIONS & DETAILS  
S-9 ROOF FRAMING SECTIONS & DETAILS  
S-10 ROOF FRAMING SECTIONS & DETAILS  
S-11 ROOF FRAMING SECTIONS & DETAILS  
S-12 ROOF FRAMING SECTIONS & DETAILS

**MECHANICAL**  
M-1 LEGEND AND ABBREVIATIONS, EQUIPMENT SCHEDULES, BWS FLOW REQUIREMENTS  
M-2 MECHANICAL AND PLUMBING FLOOR PLANS  
M-3 DETAILED MECHANICAL FLOOR PLANS AND SECTIONS  
M-4 DETAILED PLUMBING FLOOR PLANS AND DIAGRAMS  
M-5 DETAILS AND SECTIONS  
M-6 DETAILS AND SECTIONS

**ELECTRICAL**  
E-1 SITE PLAN  
E-2 ELECTRICAL PLAN AND LIGHTING PLAN - MEETING FACILITY  
E-3 LUMINAIRE SCHEDULE, ELECTRICAL AND LIGHTING PLAN - MAINTENANCE BUILDING  
E-4 DETAILS  
E-5 SYMBOL LIST, MISC. DETAILS & DIAGRAMS

**LANDSCAPE (N.I.C.)**  
L-1 SITE PLAN  
L-2 PLANTING PLAN  
L-3 IRRIGATION PLAN



LIST OF ABBREVIATIONS

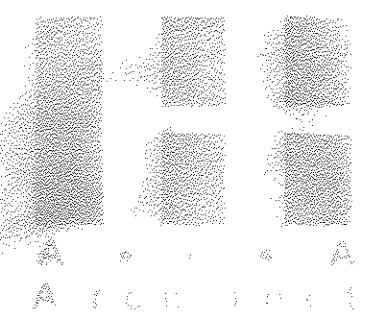
AC	Air Conditioning	GA	Gage	R	Radius
AB	Anchor Bolt	GALV	Galvanized	REBAR	Reinforcing Bar
ABV	Above	GB	Grab Bar	REF	Reference
AC	Asphaltic Concrete	GL	Glass	REFRG	Refrigerator
ACOUS	Acoustical	GND	Ground	REINF	Reinforced
AD	Area Drain	GR	Grade	REQD	Required
ADD	Addendum	GYP BD	Gypsum Wallboard	REV	Revision, Revised
ADJ	Adjustable			RFG	Roofing
ADJA	Adjacent	HB	Hose Bib	RGH	Rough
AFF	At Finish Floor	HC	Hollow Core	RM	Room
AGGR	Aggregate	HD	Head	RO	Rough Opening
ALT	Alternate	H-C	Handicapped		
APPROX	Approximate	HDWD	Hardwood	SC	Scale
ARCH	Architectural	HDWE	Hardware	SCHED	Schedule
ACOUS	Acoustical Tile	HM	Hollow Metal	SCR	Screen
TILE		HT	Height	SD	Soap Dispenser
				SECT	Section
BTB	Basaltic Termite Barrier	ID	Inside Diameter	SF	Square Foot
BD	Board	IN	Inch	SHR	Shower
BLDG	Building	INCL	Including/Inclusive	SHT	Sheet
BLKG	Blocking	INSUL	Insulation	SHTG	Sheathing
BM	Beam	INT	Interior	SIM	Similar
BOT	Bottom			SL	Slope
BET	Between	JAL	Jalousie	SLANT	Slant
		JAN	Janitor	SP	Space
CAB	Cabinet	JST	Joist	SPEC	Specification
CEM	Cement	JT	Joint	SQ	Square
CER	Ceramic			SSK	Service Sink
CFB	Cementitious Fiberboard	L	Length/Long	SST	Stainless Steel
CBB	Cementitious Backerboard	LAM	Laminate	STL	Steel
CJ	Control Joint	LAV	Lavatory	STN	Stain
CL	Centerline	LB	Pound	STOR	Storage
CLR	Clear	LF	Linear Foot	STRUC	Structural
COL	Column	LKR	Locker	SURR	Surround
CONC	Concrete	LOC	Location	SUSP	Suspended
CONSTRU	Construction	LT	Light	SVC	Service
CONT	Continuous	LVR	Louver	SYM	Symmetrical
CPT	Carpet			SYS	System
CTR	Center	MAX	Maximum		
		MB	Machine Bolt	T&G	Tongue and Groove
DET	Detail	MECH	Mechanical	TB	Towel Bar
DF	Drinking Fountain	MEMB	Membrane	TEMP	Tempered
DIA	Diameter	MET	Metal	THK	Thick
DIM	Dimension	MFR	Manufacturer	THR	Threshold
DN	Down	MLDG	Molding	TLT	Toilet
DO	Door Opening	MTD	Mounted	TOI	Top of (Item)
DP	Drain Pipe	MAT	Material	TOC	Top of Counter, Top of Curb
DR	Door	MUL	Mullion	TOP	Top of Pavement
DS	Downspout	MUN	Muntin	TOS	Top of Slab
DW	Dishwasher			TOW	Top of Wall
DWG	Drawing	NIC	Not In Contract	TPO	Toilet Paper Dispenser
DWR	Drawer	NO	Number	TRAN	Transition
		NOM	Nominal	TYP	Typical
EA	Each	NTS	Not To Scale		
ELEC	Electrical	OBS	Obscure	UNF	Unfinished
EOS	Edge of Slab	OC	On Center	UNION	Unless Otherwise Noted
EP	Electrical Panel	OD	Outside Diameter	UR	Urinal
EQ	Equal	OFCL	Owner Furnished Contractor Install		
EQPT	Equipment	OFF	Overhang	VAR	Varies
EXPO	Exposed	OFOI	Owner Furnished Owner Installed	VB	Vapor Barrier
EXT	Exterior	OH	Overhang	VERT	Vertical
EXIS	Existing	OI	Owner Installed	VOL	Volume
EA	Each	OPNG	Opening	VTR	Vent Through Roof
EJ	Expansion Joint	OPP	Opposite		
EL	Elevation	OPR	Operable	W	Wide/Width
ELEC	Electrical	OVHD	Overhead	WI	With
EDS	Edge of Slab			W/O	Without
EP	Electrical Panelboard	PC	Piece	WC	Water Closet, Wall Covering
EQ	Equal	PERIM	Perimeter	WD	Wood
EQPT	Equipment	PL	Plate	WDW	Window
EXPO	Exposed	PLAM	Plastic Laminate	WH	Water Heater
EXT	Exterior	PLYWD	Plywood	WO	Where Occurs
		PR	Pair	WP	Waterproofing
FCU	Fan Coil Unit	PREP	Preparation	WP MEMB	Waterproofing Membrane
FD	Floor Drain	PSF	Pounds Per Square Foot	WR	Water Resistant
FE	Fire Extinguisher	PT	Point, Paint	WSC	Wainscot
FEC	Fire Extinguisher Cabinet	PTD	Paper Towel Dispenser	WT	Weight
FIN	Finish	PTDR	Paper Towel Dispenser Waste Receptacle	WWF	Welded Wire Fabric
FLR	Floor	PTN	Partition		
FLASH	Flashing	PVC	Polyvinyl Chloride		
FLDG	Folding	PVMT	Pavement		
FLUOR	Fluorescent				
FOC	Face of Concrete				
FOF	Face of Finish				
FOS	Face of Slab				
FW	Face of Wall				
FR	Frame				
FT	Foot, Feet				
FTG	Footing				
FUR	Furring, Furred				

SITE PLAN

1"=40'-0"

HIHIMANU STREET

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This work was prepared by the undersigned as a professional engineer, and the undersigned is a duly licensed professional engineer in the State of Hawaii, and the undersigned is a member of the Board of Registration of Professional Engineers, Architects, and Landscape Architects.

Waimanalo Teen Pro  
41 467 Hihimanu Street  
Waimanalo, Oahu  
TMK: 4-1-009-001 265

Issue	
Sheet	T-2
Scale	
Date	



NOTE:  
BORING TEST SITES SHOWN ON THIS SHEET WERE TAKEN FROM THE REPORT TITLED  
"FOUNDATION INVESTIGATION, WAIMANALO TEEN CENTER, 41-467 HIIMANU STREET,  
WAIMANALO, OAHU, HAWAII, TMK: 4-1-03: 1 FOR WAIMANALO TEEN PROJECT" BY  
ERNEST K. HIRATA & ASSOCIATES, INC., DATED SEPTEMBER 26, 1995. REFER TO THE  
REPORT FOR BORING LOG INFORMATION.

#### ABBREVIATIONS:

A.C.	ASPHALT CONCRETE	GRD	GRASS
BL	BASELINE	H.C.	HANDICAPPED
BC	BASE COURSE	HT.	HEIGHT
BLK.	BLOCK	INV	INVERT
BS	BOTTOM SLOPE	L.P.	LIGHT POLE
BWS	BOARD OF WATER SUPPLY	MAX.	MAXIMUM
C&C	CITY AND COUNTY	MECH.	MECHANICAL
CL	CENTERLINE	MIN.	MINIMUM
C.O.	CLEANOUT	N.I.C.	NOT IN CONTRACT
CONC.	CONCRETE	NP	NON-POTABLE
CONN.	CONNECT	O.C.	ON CENTER
CONT.	CONTINUOUS	O/S	OFFSET
COTG	CLEANOUT-TO-GRADE	PAVT.	PAVEMENT
D.I.	DUCTILE IRON	PVC	POLYVINYL CHLORIDE
D.W.	DRIVEWAY	S	SEWER
ELEV	ELEVATION	SFM	SEWER FORCE MAIN
EXIST.	EXISTING	S.G.	SUBGRADE
F.E.	FLANGED END	S.L.	SEWER LINE
FM	FIRE HYDRANT	SMH	SEWER MAIN
FL	FINISH	STA.	STATION
F.L.	FLOOD	S/W	STATION
FLR	FLOOR	UP	UTILITY POLE
FM	FORCE MAIN	W	WATER

TRUE NORTH  
SCALE: 1" = 50' FT

MATCH LINE (SEE INSET)

R = 800.00'

HOUSING DEVELOPMENT

KAAIMOANA PLACE

FLOODWAY BOUNDARY

BANANA PATCH

LOT B  
10.893 ACRES

LIMITS OF CLEARING & GRUBBING

FLOODWAY & WETLANDS BOUNDARY

TEMPORARY BENCH MARK  
"CP-10"  
PK NAIL  
ELEV.=33.58

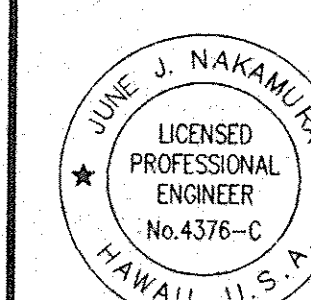
EXISTING SITE PLAN

SCALE: 1" = 50'

JOB CORP  
LOT A  
12.418 ACRES

#### LEGEND

EXIST.	22
CONTOUR	22
SPOT ELEVATION	(26.00)
BUILDING	
AC. PAVEMENT	
CONC. SIDEWALK	
CORAL PAVEMENT	
DIRT ROAD	
FENCE	
WATER LINE	W
SEWER	FM
BORING	B



ENGINEERING CONSULTANTS, INC.

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WAIMANA TEEN PROJECT  
TAX MAP 10-14-03-00-001-001

EXISTING SITE PLAN  
& ABBREVIATIONS

THIS WORK WAS PREPARED  
BY ME OR UNDER MY  
SUPERVISION AND CONTROL  
OF THIS PROJECT I  
UNDER MY OATH

DATE

APPROVED :

DIRECTOR AND CHIEF ENGINEER  
DEPARTMENT OF PUBLIC WORKS  
CITY & COUNTY OF HONOLULU

1" = 50' SCALE IN FEET



PM: LKH  
OPER: LKH  
REVISED: 01/20/97

- DATE: 09/13/96  
SCALE: 1" = 1'  
FILE: 9509

1. ALL GRADING WORK SHALL BE DONE IN ACCORDANCE WITH CHAPTER 14, ARTICLES 13.14.15 AND 16, AS RELATED TO GRADING, SOIL EROSION AND SEDIMENT CONTROL, OF THE REVISED ORDINANCES OF HONOLULU, 1990, AS AMENDED, AND SOILS REPORT W.O. 93-2393 BY ERNEST K. HIRATA & ASSOCIATES, INC. DATED SEPTEMBER 26, 1995.
2. NO CONTRACTOR SHALL PERFORM ANY GRADING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE COSTS INCURRED FOR ANY REMEDIAL ACTION BY THE CHIEF ENGINEER SHALL BE PAYABLE BY THE CONTRACTOR.
3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN CHAPTER 11-60, "AIR POLLUTION CONTROL".
4. THE UNDERGROUND PIPES, CABLES OR DUCTILINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.

5. ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE.
6. ALL SLOPES AND EXPOSED AREAS SHALL BE SODDED OR PLANTED AS SOON AS FINAL GRADES HAVE BEEN ESTABLISHED. PLANTING SHALL NOT BE DELAYED UNTIL ALL GRADING WORK HAS BEEN COMPLETED. GRADING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA WITHIN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED SHALL BE PLANTED.
7. FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
8. THE CITY SHALL BE INFORMED OF THE LOCATION OF THE BORROW/DISPOSAL SITE FOR THE PROJECT WHEN THE APPLICATION FOR A GRADING PERMIT IS MADE. THE BORROW/DISPOSAL SITE MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
9. NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE CHIEF ENGINEER, PROVIDED SUCH GRADING WORK IS ALSO IN CONFORMANCE WITH THE HAWAII ADMINISTRATIVE RULES, CHAPTER 11-43, "COMMUNITY NOISE CONTROL FOR OAHU".
10. THE LIMITS OF THE AREA TO BE GRADED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE GRADING WORK.
11. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER POLLUTION CONTROL AND WATER QUALITY STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, CHAPTER 11-65, "WATER POLLUTION CONTROL" AND CHAPTER 11-54, "WATER QUALITY STANDARDS" AND IF APPLICABLE, THE NPDES PERMIT FOR THE PROJECT.
12. WHERE APPLICABLE AND FEASIBLE THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY EARTH MOVING PHASE OF THE GRADING IS INITIATED.
13. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
14. TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR GRADING PERMIT.
15. IF THE GRADING WORK INVOLVES CONTAMINATED SOIL, THEN ALL GRADING WORK SHALL BE DONE IN CONFORMANCE WITH THE APPLICABLE STATE AND FEDERAL REQUIREMENTS.
16. NON-COMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHOULD COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE PERMITTEE. FURTHERMORE, VIOLATORS SHALL BE SUBJECTED TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.
17. BUILDING PERMIT FOR RETAINING WALLS SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF GRADING WORK ON SITE.
18. FOR BENCH MARK, SEE SHEET C-4.

- UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND CONSTRUCTION OF WATER SYSTEM FACILITIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE CITY AND COUNTY OF HONOLULU BOARD OF WATER SUPPLY'S "WATER SYSTEM STANDARDS" VOLUME 1, DATED 1985, THE "APPROVED MATERIAL LIST AND STANDARD DETAILS FOR WATER SYSTEM CONSTRUCTION", VOLUME 2, DATED 1985, THE "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS", VOLUME 3, DATED 1991, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
- NUTS AND BOLTS FOR FLANGE CONNECTIONS WITHIN METER BOXES SHALL BE BRONZE OR STAINLESS STEEL EXCEPT COUPLING ADAPTERS WERE "COR-TEN" (U.S. STEEL) OR "MAYAR" (BETHLEHEM STEEL) MAY BE USED. FLANGE CONNECTIONS OUTSIDE OF METER BOX MAY USE "COR-TEN" OR "MAYAR" TYPE NUTS AND BOLTS.
- TEST PRESSURE SHALL BE ONE OF THE FOLLOWING:
  - PREVAILING LINE PRESSURE, JOINTS LEFT EXPOSED FOR 24 HOURS TO CHECK FOR LEAKS PRIOR TO BACKFILL.
  - 150 PSI.
- THE CONTRACTOR SHALL CHLORINATE THE ENTIRE INSIDE SURFACE OF EACH PIPE AND FITTING WITH DISINFECTION SOLUTION OF 5 OUNCES OF SODIUM HYPOCHLORITE MIXED WITH 10 GALLONS OF WATER. (FOR CONNECTION ONLY.)
- THE PROJECT SHALL PAY THE APPLICABLE WATER SYSTEM FACILITIES AN/OR ONE-TIME SERVICE CHARGE AND FOR THE METER WHICH WILL BE FURNISHED BY BWS AND INSTALLED BY THE CONTRACTOR WHEN THE LATERAL IS INSTALLED.
- THE CONTRACTOR SHALL NOTIFY BWS PLANNING AND ENGINEERING DIVISION, CONSTRUCTION SECTION ONE WEEK PRIOR TO COMMENCING WORK ON THE WATER SYSTEM.
- CONTRACTOR SHALL CUT AND PLUG ALL EXISTING UNUSED LATERALS AT THE MAIN WHETHER OR NOT SHOWN ON THE PLANS. METER AND VALVE BOXES TO BE OR ALREADY ABANDONED SHALL BE DEMOLISHED OR REMOVED AND PROPERLY DISPOSED OF. THE DAMAGED AREA SHALL BE REPAIRED TO AN EQUAL OR BETTER CONDITION THAN THE IMMEDIATE AREA. ALL WORK SHALL BE DONE AT THE EXPENSE OF THE CONTRACTOR.
- AFTER INSTALLATION OF TAPPING SLEEVE AND VALVE PRIOR TO ACTUAL TAPPING OPERATIONS, THE ASSEMBLY SHALL BE TESTED AT 150 PSI. ON BOTH SIDES OF THE VALVE.
- ALL PLANS APPROVED BY THE BOARD OF WATER SUPPLY ARE BASED SOLELY ON THE ADEQUACY OF THE WATER SUPPLY.
- FOR METERS 3 INCHES AND LARGER (COMPOUND, F.M., TURBINE AND DETECTOR CHECK), CONTRACTOR SHALL NOTIFY CUSTOMER SERVICE DIVISION IN WRITING AFTER THE PLAN IS APPROVED, NO LATER THAN 120 DAYS, PRIOR TO WITHDRAWING METER FROM BWS STOREYARD. SUCH NOTICE SHALL INDICATE NUMBER, SIZE, AND TYPE OF METER (COMPOUND, F.M., TURBINE OR DETECTOR CHECK) AND APPROXIMATE MONTH AND YEAR METER IS ANTICIPATED TO BE DRAWN OUT. IF THE APPROVED PLAN IS ALLOWED TO LAPSE, THE 120-DAY NOTICE WILL BE VOIDED.
- BOARD OF WATER SUPPLY APPROVAL OF THESE PLANS DOES NOT CONSTITUTE A WATER COMMITMENT. AVAILABILITY OF WATER WILL BE DETERMINED WHEN BUILDING PERMIT IS PRESENTED TO THE DEPARTMENT. WATER COMMITMENT WILL DEPEND UPON THE STATUS OF THE WATER SYSTEM AT THAT TIME. SHOULD WATER SERVICE BE MADE AVAILABLE, THE WATER COMMITMENT WILL BE EFFECTIVE WHEN THE PROJECT RECEIVES AN APPROVED BUILDING PERMIT FROM THE BUILDING DEPARTMENT. ALL WATER COMMITMENTS WILL BE CANCELED IN THE EVENT THE BUILDING PERMIT IS CANCELED.
- THE PROJECT SHALL BE SUBJECT TO THE BOARD OF WATER SUPPLY'S CROSS-CONNECTION CONTROL REQUIREMENTS PRIOR TO ISSUANCE OF THE BUILDING PERMIT.

13. BEFORE FINAL INSPECTION IS MADE, THE CONTRACTOR IN THE PRESENCE OF THE ENGINEER, WILL FLOW TEST THE MOST CRITICAL HYDRANTS, (HYDRANTS WITH THE LEAST FLOW EXPECTED). THE ENGINEER WILL FURNISH TO THE HONOLULU FIRE DEPARTMENT (WITH A COPY TO THE BOARD OF WATER SUPPLY, CONSTRUCTION SECTION) THE FOLLOWING FLOW DATA: STATIC AND RESIDUAL PRESSURES IN PSI, PILOT AND FLOW IN GPM, GENERAL LAYOUT DRAWING SHOWING LOCATION OF HYDRANTS; AND MANUFACTURER OF HYDRANTS.
14. THE INSTALLATION, CHLORINATION AND TESTING OF THE WATER MAIN AND FACILITIES AFTER THE METER SHALL NOT BE THE RESPONSIBILITY OF THE BOARD OF WATER SUPPLY.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL WATER LINES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE ESPECIALLY CAREFUL WHEN EXCAVATING BEHIND WATER LINES, TEES AND BENDS WHEREVER THERE IS A POSSIBILITY OF WATER LINE MOVEMENT DUE TO THE REMOVAL OF THE SUPPORTING EARTH BEYOND THE EXISTING REACTION BLOCKS. THE CONTRACTOR SHALL TAKE WHATEVER MEASURE NECESSARY TO PROTECT THE WATER LINES, SUCH AS CONSTRUCTING SPECIAL REACTION BLOCKS (WITH BWS APPROVAL) AND/OR MODIFYING HIS CONSTRUCTION METHOD.
16. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AS SHOWN ON THE PLANS ARE FROM THE LATEST AVAILABLE DATA BUT IS NOT GUARANTEED AS TO THE ACCURACY OR THE ENCOUNTERING OF OTHER OBSTACLES DURING THE COURSE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGES TO THE EXISTING UTILITIES.
17. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL TO THE BOARD OF WATER SUPPLY, THE MANUFACTURER'S CERTIFICATION THAT ALL CAST IRON (GRAY OR DUCTILE) FITTINGS FOR THE PROJECT CONFORM IN ALL RESPECTS TO THE WATER SYSTEM STANDARDS, DATED 1985.
18. POLYGON SHAPE FOR MECHANICAL JOINT GLANDS AS DESCRIBED IN AWWA STANDARD C111 SHALL BE "STRAIGHT-SIDED" OR AN APPROVED EQUAL ON A JOB TO JOB BASES.
19. RE-APPROVAL SHALL BE REQUIRED IF THIS PROJECT IS NOT UNDER CONSTRUCTION WITHIN A PERIOD OF TWO YEARS.
20. THE BACKFLOW PREVENTER DEVICE MUST BE INSTALLED BEFORE METER IS ISSUED.
21. THE CONTRACTOR/DEVELOPER SHALL OBTAIN A NPDES PERMIT PRIOR TO CHLORINATION AND/OR DEWATERING. A COPY OF THE PERMIT SHALL BE SUBMITTED TO THE BOARD OF WATER SUPPLY, PLANNING AND ENGINEERING DIVISION, CONSTRUCTION SECTION.
22. ADD ONE FOOT TO ALL DIMENSION "C" OF BWS STANDARD DETECTOR CHECK METER DETAIL NO. 62.
23. DIMENSIONS "H", "J" AND "K" OF THE BWS STANDARD 6-INCH DETECTOR CHECK METER DETAIL NO. 62 MUST BE 18-INCH, 36-INCH, AND 52-INCH RESPECTIVELY.
24. PIPE CUSHION SHALL BE OF HIGH RESISTIVITY MATERIAL. THE CONTRACTOR SHALL SUBMIT A SOIL CERTIFICATION THAT HIGH RESISTANT CUSHION MATERIAL HAS A RESISTIVITY GREATER THAN 5,000 OHM-CM. REMAINDER OF THE BACKFILL MATERIAL SHALL BE AS SPECIFIED IN VOLUME 1 OF THE WATER SYSTEM STANDARDS. PIPE CUSHION AND BACKFILL MATERIAL SHALL CONTAIN NO HAZARDOUS SUBSTANCES ABOVE REGULATORY ACTION LEVELS INCLUDING BUT NOT LIMITED TO LEAD, ASBESTOS, MERCURY, CHROMIUM, CADMIUM, ZINC, STRONTIUM, AND POLYCHLORINATED BIPHENYLS (PCB).

1. ALL SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY'S STANDARD SPECIFICATIONS, SEPTEMBER 1986, THE DEPARTMENT OF PUBLIC WORKS STANDARD DETAILS, SEPT. 1984, CURRENT CITY PRACTICES AND REVISED ORDINANCES OF HONOLULU, 1990, AS AMENDED, AND THE DESIGN STANDARDS OF THE DEPARTMENT OF WASTEWATER MANAGEMENT VOL. 1, JULY 1993.
2. IN THE EVENT THAT ANY CHANGE IN ALIGNMENT OR GRADE FOR THE EXISTING SEWERS ARE REQUIRED DUE TO UNFORESEEN CONFLICT WITH OTHER UTILITIES, THE ENGINEER IN CHARGE OR THE MAKER OF THE PLANS SHALL BE RESPONSIBLE FOR THE REQUIRED CHANGES.
3. CRUSHED ROCK CRADLE IS PERMITTED WHERE SOIL IS STABLE. IN AREAS OF UNSTABLE SOIL, THE MAKER OF THE PLANS AND THE CONSTRUCTION ENGINEER WILL DETERMINE THE PIPE SUPPORT REQUIRED.
4. TREES IN THE ROAD RIGHT-OF-WAY SHALL BE SITUATED A MINIMUM OF 6'-0" FROM THE CITY'S SEWER LINES.
5. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS RESEARCH OF RECORDS ARE INDICATED ON THE PLANS, THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING THE AREA. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGED UTILITIES.
6. PIPING MATERIAL SHALL BE AS FOLLOWS:  
GRAVITY SEWER LATERALS . . . . . PVC, ASTM D3034  
SEWER FORCE MAIN . . . . . PVC, AWWA C-900 WITH CAST IRON FITTINGS.
7. SLOPE FOR SEWER LATERALS SHALL BE 1.00% UNLESS OTHERWISE NOTED.
8. BUILDING PLUMBING FACILITIES SHALL BE CONTROLLED BY SEWER LATERAL INVERTS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTINUOUS SEWER SERVICE TO ALL AFFECTED AREAS DURING CONSTRUCTION.
10. THE CONSULTING ENGINEER SHALL SUBMIT TO THE DEPARTMENT OF WASTEWATER MANAGEMENT MYLAR "AS-BUILT" TRACINGS OF THE CONSTRUCTION PLANS AS ACTUALLY CONSTRUCTED, SHOWING ALL CHANGES FROM THE ORIGINAL PLANS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SEWAGE SPILLS CAUSED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE STATE DEPARTMENT OF HEALTH AND UTILIZE APPROPRIATE SAMPLING AND ANALYZING PROCEDURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PUBLIC NOTIFICATION AND PRESS RELEASES.
12. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION SECTION, DEPT. OF WASTEWATER MANAGEMENT AT 527-6740 OR 527-6260 TO ARRANGE FOR INSPECTION SERVICES AND SUBMIT FOUR SETS OF APPROVED CONSTRUCTION PLANS SEVEN DAYS PRIOR TO COMMENCEMENT OF SEWER WORK. THE CONTRACTOR SHALL PAY FOR ALL INSPECTION COSTS.
13. CONFINED SPACE

FOR ENTRY BY CITY PERSONNEL, INCLUDING INSPECTORS, INTO A PERMIT REQUIRED CONFINED SPACE AS DEFINED IN 29 CFR PART 1910.146(b), THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING:

1. ALL SAFETY EQUIPMENT REQUIRED BY THE CONFEDERATE REGULATIONS APPLICABLE TO ALL PARTIES OTHER THAN THE CONSTRUCTION INDUSTRY, TO INCLUDE, BUT NOT LIMITED TO THE FOLLOWING:
  - a. FULL BODY HARNESSSES FOR UP TO TWO PERSONS
  - b. LIFELINE AND ASSOCIATED CLIPS.
  - c. INGRESS/EGRESS AND FALL PROTECTION
  - d. TWO-WAY RADIO (WALKIE-TALKIES) IF OTHER
  - e. EMERGENCY (ESCAPE) RESPIRATOR (10 MINUTE)
  - f. CELLULAR TELEPHONE TO CALL FOR EMERGENCY ASSISTANCE
  - g. CONTINUOUS GAS DETECTOR (CALIBRATED) TO MEASURE OXYGEN, HYDROGEN SULFIDE, CARBON MONOXIDE AND FLAMMABLES (CAPABLE OF MONITORING AT A DISTANCE AT LEAST 20- FEET AWAY)
  - h. PERSONNEL MULTI-GAS DETECTOR TO BE CARRIED BY INSPECTOR
2. CONTINUOUS FORCED AIR VENTILATION ADEQUATE TO PROVIDE SAFE ENTRY CONDITIONS.
3. ONE ATTENDANT/RESCUE PERSONNEL TOPSIDE (TWO, IF CONDITIONS WARRANT IT).

14. WHEN CONNECTING TO A LIVE SEWER LINE, THE CONTRACTOR SHALL NOTIFY DEPARTMENT OF HEALTH, CLEAN WATER BRANCH IN WRITING OF THE CONNECTION TO A LIVE SEWER LINE. THE CONTRACTOR SHALL ASSURE CONDITIONS THAT THE DEPARTMENT OF HEALTH SETS FORTH TO AVOID WASTEWATER SPILL THAT MAY OCCUR. COPIES OF ALL CORRESPONDENCE TO THE DEPARTMENT OF HEALTH SHALL BE SUBMITTED TO THE DEPARTMENT OF WASTEWATER MANAGEMENT PRIOR TO THE ACTUAL CONNECTION.

15. THE WASTEWATER SYSTEM FACILITY CHARGE MUST BE PAID PRIOR TO PERMIT APPROVAL.

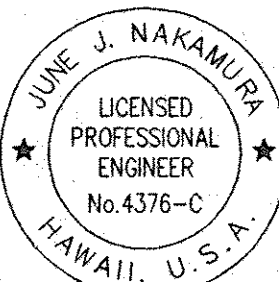
1. THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL QUALITY.
2. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND ITS SURROUNDING AREAS FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH. THE CITY SHALL REQUIRE SUPPLEMENTARY MEASURES IF REQUIRED.
3. NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION ACTIVITY SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLEW OR FLOW INTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE COSTS INCURRED FOR ANY REMEDIAL ACTION BY THE ENGINEER SHALL BE PAYABLE BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC.
5. THE CONTRACTOR'S ATTENTION IS DIRECTED TO CHAPTER 43 PUBLIC HEALTH REGULATIONS DEPARTMENT OF HEALTH, STATE OF HAWAII, "COMMUNITY NOISE CONTROL FOR OAHU" IN WHICH MAXIMUM ALLOWABLE NOISE LEVELS HAVE BEEN SET. IF THE CONSTRUCTION ACTIVITIES FOR THIS PROJECT WILL EXCEED THE ALLOWABLE NOISE LEVELS, THE CONTRACTOR WILL BE REQUIRED TO OBTAIN A PERMIT FROM THE DIRECTOR OF THE DEPARTMENT OF PUBLIC HEALTH. THE CONTRACTOR SHALL OBTAIN A COPY OF CHAPTER 43 AND BECOME FAMILIAR WITH THE NOISE LEVEL RESTRICTIONS AND THE PROCEDURES FOR OBTAINING A PERMIT FOR CONSTRUCTION ACTIVITIES. APPLICATIONS AND INFORMATION ON VARIANCES ARE AVAILABLE AT THE ENVIRONMENTAL HEALTH SERVICES DIVISION, 1250 PUNCHBOWL ST., HONOLULU, HI 96813 OR BY TELEPHONE, (586-4576).

CHIEF, DIVISION OF ENGINEERING, DPW  
(FOR CONSTRUCTION W/IN THE CITY R/W AND GRADING ONLY)

CHIEF, DIV. OF PLANNING & SERVICE CONTROL - DWHM  
(FOR SEWER CONNECTION TO CITY SEWER SYSTEM ONLY)

CHIEF, PLANNING & ENGINEERING DIVISION, BWS  
(FOR METER INSTALLATION ONLY)

CHIEF, TRANSPORTATION MANAGEMENT DIVISION, DTS  
(FOR CONSTRUCTION W/IN THE CITY R/W ONLY)

REVISION NO.	DESCRIPTION	APPROVED
	<p align="center"><b>ENGINEERING &amp; SURVEYING, INC.</b></p> <p align="center">Consulting Engineers</p> <p align="center">98-021 Kamehameha Highway Honolulu, Hawaii 96813</p> <hr/> <p align="center"><b>WAIMANALO GREEN PROJECT</b></p> <p align="center">TAX MAP KEY</p> <hr/> <p align="center">NOTES</p>	<p>DATE: 12/1/88</p> <p>BY: [Signature]</p>
<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION</p> <p>DATE: 12/1/88</p>	<p>13 PLO 101-8855</p> <p>SCALE: AS SHOWN</p> <p align="right"><b>C</b></p>	



## HAWAIIAN ELECTRIC COMPANY NOTES (CONT.)

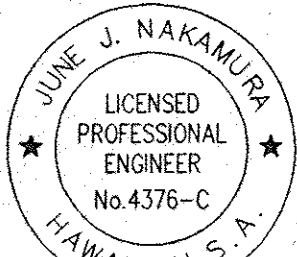
12. CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS HECO FROM AND AGAINST ALL LOSSES, DAMAGES, CLAIMS AND ACTIONS, ALL EXPENSES INCIDENTAL TO SUCH LOSSES, DAMAGES, CLAIMS OR ACTIONS, BASED UPON OR ARISING OUT OF DAMAGES TO PROPERTY OR INJURIES TO PERSONS, OR OTHER TORTIOUS ACTS CAUSED OR CONTRIBUTED TO BY CONTRACTOR OR ANYONE ACTING UNDER ITS DIRECTION OR CONTROL OR ON ITS BEHALF, PROVIDED CONTRACTOR'S INDEMNITY SHALL NOT BE APPLICABLE TO ANY LIABILITY BASED UPON SOLE NEGLIGENCE OF HECO.

1. THE LOCATION OF HAWAIIAN TEL'S EXISTING UTILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION, WHENEVER CONSTRUCTION CROSSES OR IS IN PROXIMITY OF HTCO'S FACILITIES AND SHALL MAINTAIN PROPER CLEARANCES. THE CONTRACTOR SHALL VERIFY THEIR LOCATIONS AND SHALL BE LIABLE FOR ANY DAMAGES TO HTCO'S FACILITIES. ANY DAMAGES SHALL BE REPORTED IMMEDIATELY TO HTCO'S REPAIR SECTION AT #611 (24 HOURS) OR #632-6888 DURING NORMAL WORK DAYS HOURS, MONDAY THRU FRIDAY.
2. THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT AND TONING REQUEST FROM HTCO'S RECORD SECTION, LOCATED AT 3239 UALENA ST., 3RD FLOOR, TWO WEEKS PRIOR TO THE START OF CONSTRUCTION. HOURS OF BUSINESS IS 7:00 AM TO 10:30 AM AND 11:30 TO 3:00 PM MONDAY THRU FRIDAY, EXCEPT HOLIDAYS.
3. ANY WORK INVOLVING EXISTING DUCTS OR CABLES, SHALL BE DONE IN THE PRESENCE OF AN HTCO'S INSPECTOR OR DESIGNATED REPRESENTATIVE.
4. WHEN EXCAVATION IS ADJACENT TO OR BENEATH HTCO'S EXISTING STRUCTURES OR UTILITIES, THE CONTRACTOR SHALL:
  - A) SHEET AND/OR BRACE THE EXCAVATION TO PREVENT SLIDES, CAVE-INS OR SETTLEMENTS TO ENSURE NO MOVEMENT TO HTCO'S STRUCTURES OR FACILITIES.
  - B) PROTECT EXISTING STRUCTURES AND/OR FACILITIES WITH BEAMS, STRUTS OR UNDERPINNING WHILE EXCAVATING BENEATH THEM TO ENSURE NO MOVEMENT.
5. THE CONTRACTOR SHALL NOTIFY HTCO'S INSPECTOR OR DESIGNATED REPRESENTATIVE 72 HOURS PRIOR TO EXCAVATION, BRACING OR BACKFILLING OF HTCO'S STRUCTURES OR FACILITIES.
6. FOR UNDERGROUND CABLE LOCATING AND MARKING, FIVE (5) WORKING DAYS ADVANCE NOTICE IS REQUIRED. THREE (3) WORKING DAYS ADVANCE NOTICE IS REQUIRED FOR ANY INSPECTION OF A DESIGNATED REPRESENTATIVE. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTION NOT TO DAMAGE ANY EXISTING CABLES OR DUCTS. AN HTCO INSPECTOR OR DESIGNATED REPRESENTATIVE IS REQUIRED TO BE AT ANY JOB SITE WHENEVER THERE WILL BE A BREAKAGE OR ENTRY INTO ANY STRUCTURE THAT CONTAINS COMMUNICATION FACILITIES.
7. INSTALLATION OF A HTCO DUCTLINE SYSTEM SHALL CONFORM WITH THE REQUIREMENTS OF THE HTCO'S STANDARD SPECIFICATION FOR PLACING UNDERGROUND SYSTEMS DATED MAY 1992, ALL SUREQUENT AMENDMENTS AND ADDITIONS, AND ALL OTHER PERTINENT STANDARDS FOR TELEPHONE CONSTRUCTION. CONTRACTOR SHALL FAMILIARIZE HIS PERSONNEL BY OBTAINING APPLICABLE SPECIFICATIONS.
8. THE CONTRACTOR SHALL PROVIDE A 5/8" x 8' GALVANIZED GROUND ROD BELOW THE TELEPHONE CABINET OR BACKBOARD AND A #6TW INSULATED GREEN GROUND WIRE WITH A 3' COIL. TELEPHONE CABINETS SHALL BE GROUNDED.
9. CONCRETE STRENGTH SHALL BE 3000 PSI IN 28 DAYS.
10. BENDS IN THE DUCT ALIGNMENT, DUE TO CHANGES IN GRADE SHALL HAVE A MINIMUM RADIUS OF 20 FEET. 90 DEGREE C-BENDS AT A POLE OR AT THE BUILDING FLOOR SLAB PENETRATION, SHALL BE TEN TIMES THE DIAMETER OF THE DUCT OR GREATER.
11. AFTER DUCTLINE HAS BEEN COMPLETED, A MANDREL NOT LESS THAN 12" LONG AND HAVING A DIAMETER OF 1/4" LESS THAN THE INSIDE DIAMETER OF THE DUCT, WITH A SQUARE FRONT, SHALL BE PULLED THROUGH EACH DUCT AFTER WHICH A BRUSH WITH STIFF BRISTLES SHALL BE PULLED THROUGH TO MAKE CERTAIN THAT NO PARTICLES OF EARTH, SAND, OR GRAVEL HAVE BEEN LEFT IN THE LINE. DUCTS SHALL BE COMPLETELY DRY AND CLEAN.
12. ALL DUCTS AND CONDUITS SHALL HAVE AN 1800# POLYESTER MULE-TAPE (NEPTCO WP1800P, QTE HAWAIIAN TEL MATERIAL CODE NO. 571154) INSTALLED THROUGH OUT ITS ENTIRE LENGTH. ALL DUCTS SHALL BE CAPPED TO PREVENT ENTRY OF FOREIGN MATERIAL DURING CONSTRUCTION AND AT THE COMPLETION OF INSTALLATION.
13. METALLIC ENTRANCE CONDUITS SHALL BE GROUNDED.
14. ALL CONDUITS WITHIN A BUILDING SHALL:
  - A) BE INSTALLED IN THE SHORTEST AND STRAIGHTEST POSSIBLE RUN.
  - B) NO SECTION SHALL BE LONGER THAN 100 FEET NOR CONTAIN MORE THAN TWO NINETY DEGREE BENDS. AN APPROVED SIZE JUNCTION BOX OR GUTTER BOX SHALL BE PLACED IF THIS IS EXCEEDED.
  - C) ALL BENDS SHALL BE LONG SWEEP-RADIUS BENDS BUT THE INSIDE RADIUS OF THE BEND MUST NEVER BE LESS THAN TEN TIMES THE DIAMETER OF THE CONDUIT.
15. DUCTS AND/OR CONDUITS INSTALLED FOR USAGE BY HTCO, SHALL BE INSPECTED BY HTCO.
16. ALL CONSTRUCTION MUST BE INSPECTED AND APPROVED BY THE COMPANY, PRIOR TO THE INSTALLATION OF ANY OF ITS FACILITIES AND THE ENERGIZING OF ITS SYSTEMS. HTCO WILL COMMENCE INSTALLATION ONLY AFTER THE CONSTRUCTION HAS BEEN APPROVED AND WILL ENERGIZE NO SOONER THAN 30 WORKING DAYS THEREAFTER. A PROJECT OF A LARGE MAGNITUDE WILL REQUIRE MORE TIME.
17. CONTRACTOR AND/OR CUSTOMER SHALL PROVIDE HTCO WITH SUFFICIENT INSTALLATION TIME IN THEIR OCCUPANCY TIME TABLE.
18. CONTRACTOR SHALL FURNISH ALL LABOR AND MATERIALS.

1. THE LOCATION OF HECO'S OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AND ARE NOT GUARANTEED AS SHOWN. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND LINES AND SHALL MAINTAIN ADEQUATE CLEARANCE WHEN OPERATING EQUIPMENT WITHIN OR UNDER ANY OVERHEAD LINES.
2. THE CONTRACTOR SHALL COMPLY WITH THE STATE OF HAWAII'S OCCUPATIONAL SAFETY AND HEALTH LAW (DOSH).
3. THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM HECO'S MAPPING AND RECORDS DIVISION LOCATED AT 820 WARD AVENUE, 4TH FLOOR, TWO WEEKS PRIOR TO STARTING CONSTRUCTION. PLEASE REFER TO OUR REQUEST NUMBER AT THAT TIME.
4. FOR VERIFICATION OF UNDERGROUND LINES OR FOR ASSISTANCE IN SUPPORTING AND PROTECTING THESE LINES, THE CONTRACTOR SHALL CALL HECO'S UNDERGROUND DIVISION AT 543-7345 A MINIMUM OF 72 HOURS IN ADVANCE.
5. WHEN TRENCH EXCAVATION IS ADJACENT TO OR BENEATH OUR EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR:
  - A) SHEETING AND BRACING THE EXCAVATION TO PREVENT SLIDES, CAVE-INS AND SETTLEMENTS.
  - B) PROTECTING EXISTING STRUCTURES OR FACILITIES WITH BEAMS, STRUTS, OR UNDER-PINNING.
6. FOR POLE BRACING INSTRUCTIONS, THE CONTRACTOR SHALL CALL THE HECO DISTRICT CONSTRUCTION SUPERINTENDENT AT (KOOLAU/PHONE 261-6084, WAIKUA/543-4223, WARD/543-7745) A MINIMUM OF 72 HOURS IN ADVANCE.
7. ANY WORK REQUIRED TO RELOCATE HECO FACILITIES SHALL BE DONE BY HECO OR THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, AND FOR COSTS IF APPLICABLE.
8. SHOULD IT BECOME NECESSARY TO TEMPORARILY RELOCATE ANY HECO FACILITIES TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE AND EXPEDITIOUS MANNER IN FULFILLING HIS CONTRACT OBLIGATIONS, THESE TEMPORARY RELOCATIONS WILL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION, WITH ALL COSTS BEING BORNE BY THE CONTRACTOR.
9. ANY UNFORESEEN CONFLICT THAT WOULD RESULT IN THE REDESIGN OR RELOCATION (EITHER TEMPORARY OR PERMANENT) OF HECO'S ELECTRICAL FACILITIES MAY BE CAUSE FOR LENGTHY DELAYS. TO AVOID SUCH DELAYS, THE CONTRACTOR MUST NOTIFY HECO OF THE CONFLICT A MINIMUM OF 30 DAYS PRIOR TO THE START OF CONSTRUCTION.
10. ANY DAMAGE TO HECO'S FACILITIES WILL BE REPORTED IMMEDIATELY TO HECO'S TROUBLE DISPATCHER AT 543-7874.
11. ALL HECO OVERHEAD AND UNDERGROUND FACILITIES SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION. COSTS FOR DAMAGES TO HECO FACILITIES SHALL BE BORNE BY THE CONTRACTOR. THIS REPAIR WORK SHALL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION.

CHIEF, TRANSPORTATION MANAGEMENT DIVISION, DTS  
(FOR CONSTRUCTION W/IN THE CITY & COUNTY)

DATE \_\_\_\_\_

REVISION NO.	DESCRIPTION	APPROVED BY
	<p><b>ENGINEERING CONSULTANTS</b></p> <p>38-021 Kamehameha Highway • Honolulu, HI 96813</p> <p><b>WAIMANALO PROJECT</b></p> <p>TAX MAP KEY</p>	<p>DATE: 11-27-87</p> <p>PROJECT NO. 85-005</p> <p>DATE: 11-27-87</p> <p>PROJECT NO. 85-005</p>

C-2A

PM: LKH  
OPER: LKH  
REVISED: 01/09/97

DATE: 09/13/96  
SCALE: 1" = 1'  
FILE: 9509



TRUE NORTH  
SCALE: 1" = 20'

LOT B  
10.893 ACS.

BUS FLOW REQUIREMENTS			
SERVICE NUMBER (S/N):	612-61400		
METER NUMBER (M/N):	19364660		
A. PROPOSED DOMESTIC (ALL FIXTURES BEING INSTALLED)	13.8 FU.	53 GPM	3100 GPD
B. PROPOSED IRRIGATION *	40 FU.	24 GPM	1000 GPD
C. TOTAL PROPOSED (ADD A AND B ABOVE)	13.8 FU.	53 GPM	3800 GPD
D. DEMOLITION (ALL FIXTURES BEING REMOVED)	0 FU.	0 GPM	
E. NET TOTAL	13.8 FU.	53 GPM	3800 GPD
F. EXISTING TO REMAIN	0 FU.	0 GPM	
G. NEW GRAND TOTAL	13.8 FU.	53 GPM	3800 GPD

\* IRRIGATION WILL OCCUR DURING NON-PEAK HOURS.

FOR ESTIMATING PURPOSES ONLY

DESCRIPTION OF WORK		ESTIMATE
DOMESTIC SERVICE		N/A
METER		
INSTALLATION CHARGE		
WATER SYSTEM FACILITIES		
CHARGES	F.U. x \$ /F.U. =	44,436.13
CREDIT		
S/N		
S/N		
FIRE SERVICE		
6" METER	1085	1085
INSTALLATION CHARGE		
ONE-TIME CHARGE	12100	12100
TOTAL		57,621.13

\* CREDITS (IF ANY) WILL BE DETERMINED WHEN THE BUILDING PERMIT APPLICATION IS SUBMITTED FOR BUS REVIEW AND APPROVAL.

THIS ESTIMATE IS SUBJECT TO CHANGE AND A FORMAL WRITTEN QUOTATION SHALL BE OBTAINED WITHIN 30 DAYS AFTER THE CONSTRUCTION PLAN IS APPROVED BY BUS. ALL PAYMENTS FOR THE CHARGES SHOWN ON THE FORMAL QUOTATION SHALL BE MADE WITHIN 30 DAYS OF THE BUS APPROVAL DATE. IF PAYMENTS ARE NOT RECEIVED WITHIN THE 30 DAY PERIOD, THE PROJECT WILL BE SUBJECT TO THE PREVAILING RATES.

NOTES:

- FOR ACCESS ROAD, SEWER FORCE MAIN, AND GRAVITY SEWER LINE PROFILES, SEE SHEET C-7.
- FOR WATER LINE PROFILES, SEE SHEET C-8.
- FOR SEWAGE PUMP STATION PLAN AND DETAILS, SEE SHEET C-10.
- FOR TYPICAL SITE AND UTILITY DETAILS, SEE SHEETS C-1 TO C-14.
- FOR HIHIMANU ROAD SIDE IMPROVEMENTS, SEE DETAIL C-15.
- CONTRACTOR TO INSTALL ALL NECESSARY FITTINGS A 1/2-INCH METER AND ALL APPURTENANCE IN ACCORDANCE WITH CITY STANDARDS. BUS TO REMOVE EXISTING 2-INCH METER AND 1/2-INCH METER.
- ON-SITE FIRE HYDRANT CAPABLE OF PROVIDING 20 PSI.
- CONTRACTOR SHALL BE REQUIRED TO SUBMIT A TRAFFIC CONTROL PLAN TO THE CITY AND COUNTY OF HONOLULU, DEPARTMENT OF TRANSPORTATION SERVICES (DTS) FOR WORK IN THE CITY RIGHT-OF-WAY. THE CONTRACTOR SHALL NOT PROCEED WITH ANY WORK IN THE CITY RIGHT-OF-WAY UNTIL THE TRAFFIC CONTROL PLAN IS APPROVED BY DTS.
- SEWAGE FLOW (PEAK): 36,000 GPD.
- OWNER OF PROPERTY: WAIMANALO TEEN PROJECT, INC. 41-1347 KALANIANIA'OLE HWY. WAIMANALO, HI 96795

APPROVED :

CHIEF, DIVISION OF ENGINEERING, DPW  
(FOR CONSTRUCTION W/IN THE CITY R/W ONLY)

CHIEF, DIV. OF PLANNING & SERVICE CONTROL - DPWMM  
(FOR SEWER CONNECTION TO CITY SEWER SYSTEM ONLY)

CHIEF, PLANNING & ENGINEERING DIVISION, BWS  
(FOR METER INSTALLATION ONLY)

CHIEF, TRANSPORTATION MANAGEMENT DIVISION, DTS  
(FOR CONSTRUCTION W/IN THE CITY R/W ONLY)

FIRE CHIEF, HONOLULU FIRE DEPARTMENT

1" = 20'  
SCALE IN FEET

SITE / UTILITY PLAN  
SCALE: 1" = 20'

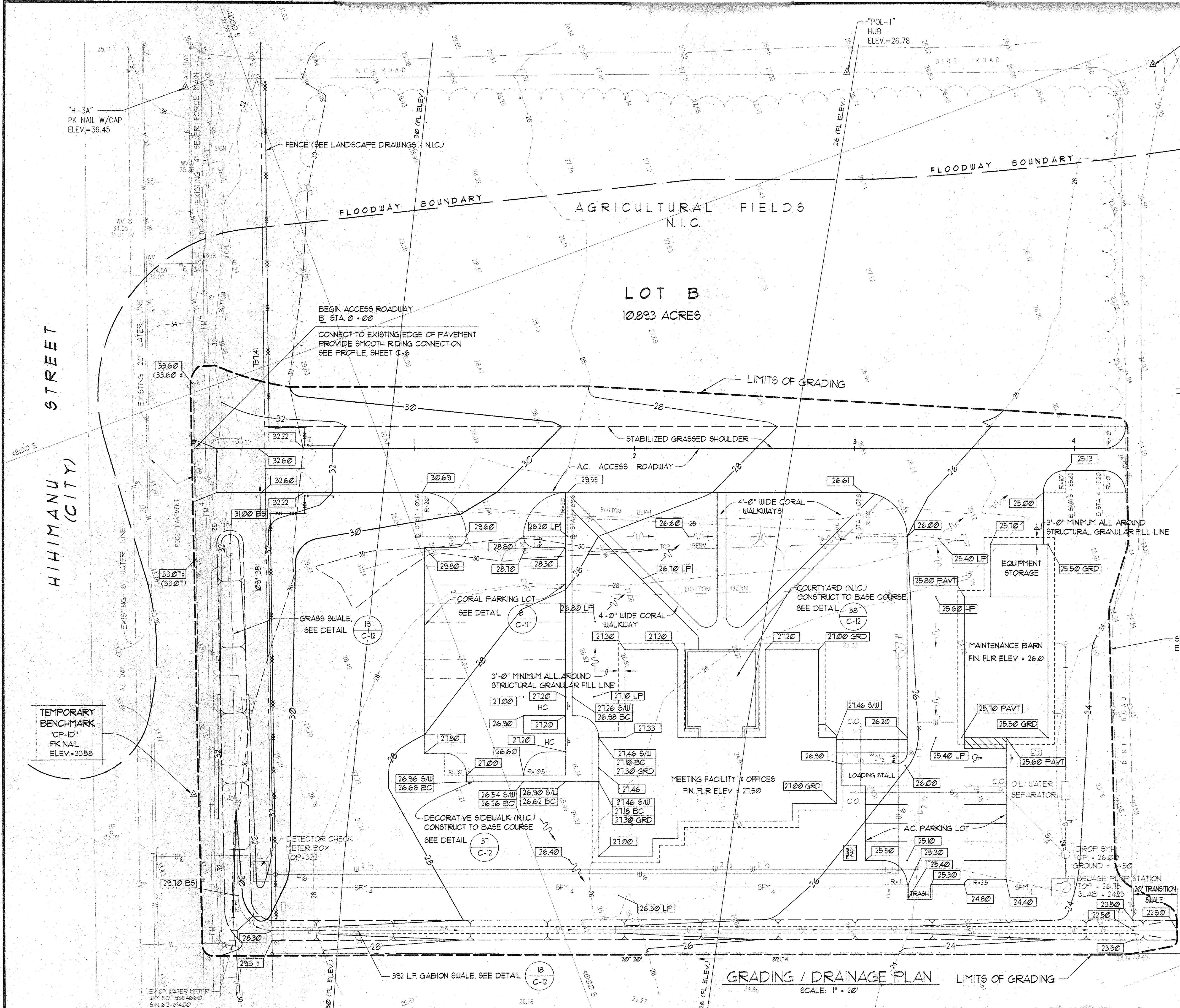
TMK: 41-09-1 (LOT A)  
HAWAII JOB CORPS CENTER

REVISION NO.	DESCRIPTION	APPROVED BY
1	ENGINEER'S SEAL	
2	Consultant	
3	98-021 Kamehameha Highway - Suite	
4	WAIMANALO TEEN PROJECT	
5	TAX MAP KEY :	
6	ENGINEER'S SEAL	
7	LICENSED PROFESSIONAL ENGINEER	
8	No. 4376-C	
9	HAWAII, U.S.A.	
10	THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION	
11	DATE: 01/20/97	
12	PROJECT NO. 9802	
13	DATE: 01/20/97	
14	C-3	



DATE: 09/13/96  
SCALE: 1" = 20'  
FILE: 9509

PM: LKH  
OPER: LKH  
REVISED: 01/20/97



### EARTHWORK SUMMARY

(FOR PERMIT PURPOSES ONLY)

AREA OF CLEARING, GRUBBING & GRADING = 4.50

TOTAL EXCAVATION = 2,374 C.Y.

TOTAL EMBANKMENT = 2,401 C.Y.

\* QUANTITIES SHOWN ARE FOR PERMIT PURPOSES ONLY AND SHALL NOT BE USED FOR BIDDING PURPOSES

### NOTES:

1. FOR CROSS-SECTIONS, SEE SHEET C-9.
2. CONTRACTOR TO ADJUST EXISTING WATER METER BOX COVER AS REQUIRED.

### LEGEND:

- LIMITS OF GRADING
- - - - - EXISTING CONTOURS
- NEW CONTOURS
- 25.13 SPOT ELEVATIONS

APPROVED :

CHIEF, DIVISION OF ENGINEERING, DPW  
(FOR CONSTRUCTION W/IN THE CITY R/W, GRADING, AND GRUBBING ONLY)

REVISION NO.	DESCRIPTION	APPROVED BY
1	ENGINEER'S COPY	
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

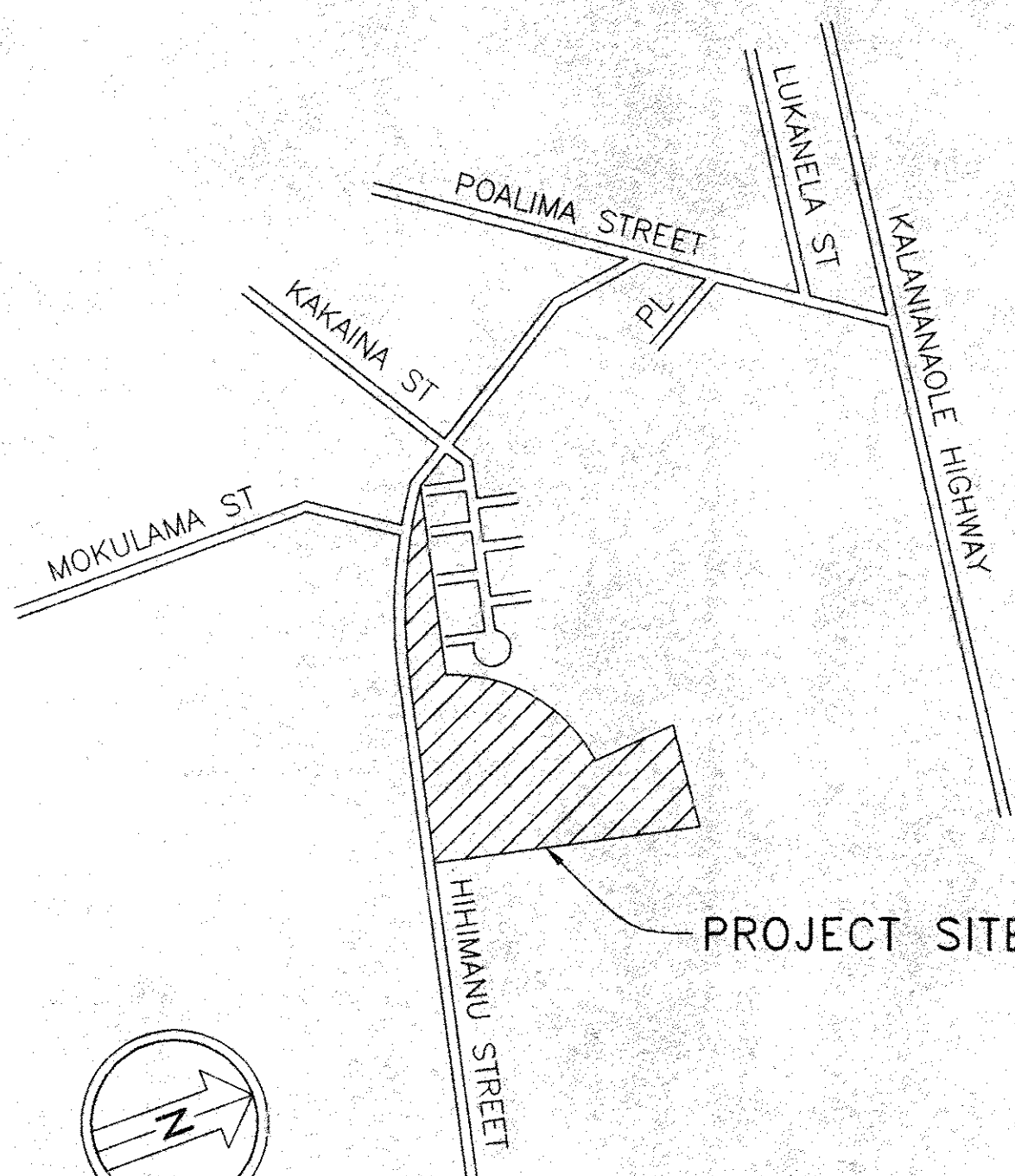
DATE: 10/09/97

WAIMANALO TOWN PROJECT

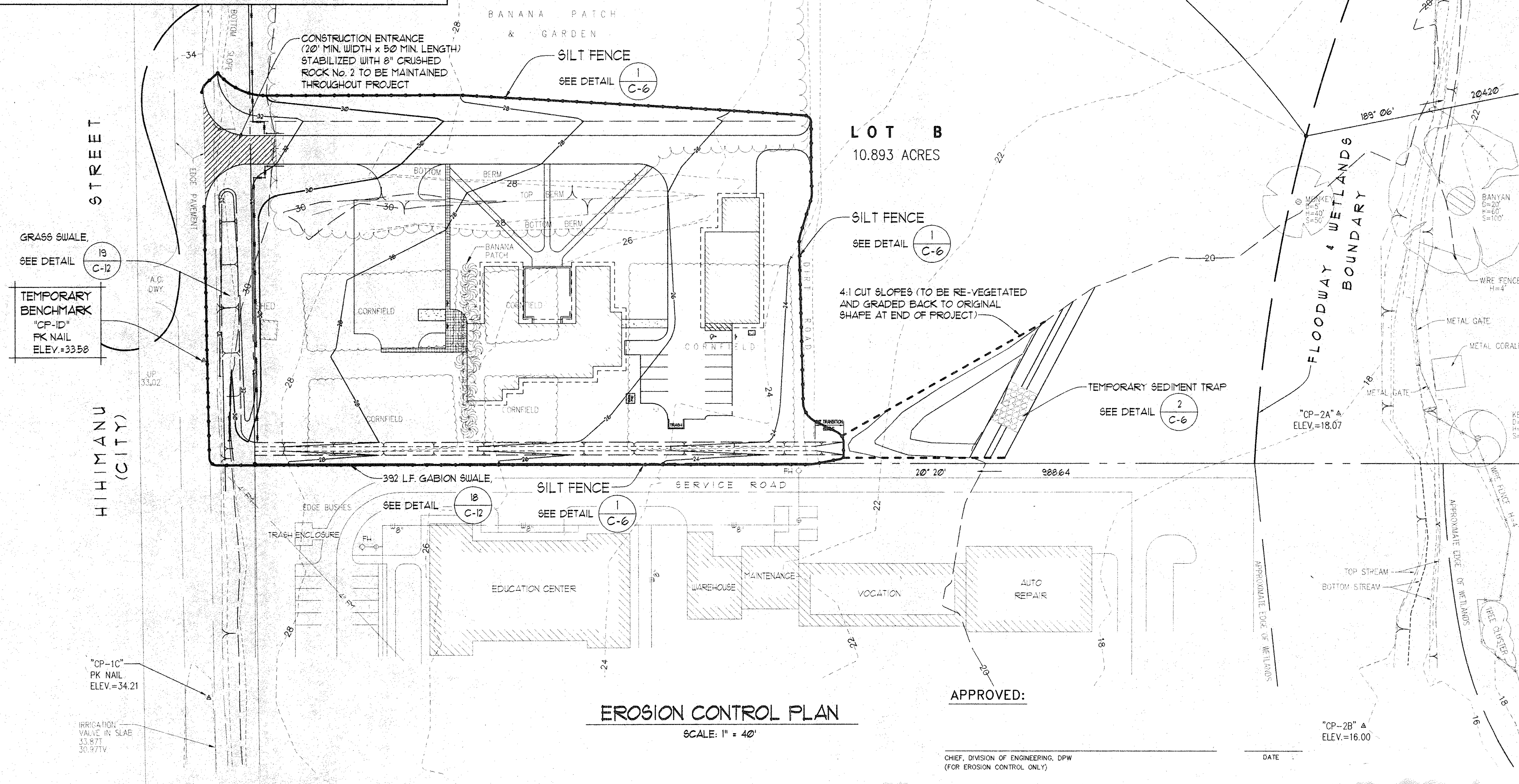
GRADING / DRAINAGE PLAN

C-4





LOCATION MAP  
NOT TO SCALE  
TMK 4-01-09-01 LOT B



EROSION CONTROL PLAN  
SCALE: 1" = 40'

APPROVED:

CHIEF, DIVISION OF ENGINEERING, DPW  
(FOR EROSION CONTROL ONLY)

DATE

LEGEND

- SILT FENCE, SEE DETAIL
- CONSTRUCTION ENTRANCE
- TEMPORARY SEDIMENT TRAP

EARTHWORK SUMMARY

(FOR PERMIT PURPOSES ONLY)  
AREA OF CLEARING, GRUBBING & GRADING = 256  
TOTAL EXCAVATION = 2,314 C.Y.  
TOTAL EMBANKMENT = 2,401 C.Y.  
QUANTITIES SHOWN ARE FOR PERMIT PURPOSES ONLY  
AND SHALL NOT BE USED FOR BIDDING PURPOSES

BMP NOTES:

1. CONSTRUCT TEMPORARY SILT FENCE AS SHOWN ON PLANS
2. CLEAR AND GRUB SITE
3. CONSTRUCT TEMPORARY CONSTRUCTION ENTRANCE STABILIZED WITH CRUSHED ROCK NO. 2 AND MAINTAIN THROUGHOUT PROJECT
4. CONSTRUCT TEMPORARY SEDIMENT TRAP AND MAINTAIN THROUGHOUT PROJECT
5. CONSTRUCT PERMANENT GRASS SWALE AND PERMANENT GABIION SWALE
6. CONSTRUCT PERMANENT LANDSCAPING AND IRRIGATION SYSTEM

REVISION NO.	DESCRIPTION	APPROVED BY
1	ENGINEERING CONSULTANTS, INC. 98-021 Kamehameha Highway WAIMANA, HAWAII 96791	
2	WAIMANA PROJECT TAX MAP	
3	EROSION CONTROL PLAN	

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DATE: 10-20-97

C-5



SILT FENCES

1. THE HEIGHT OF A SILT FENCE SHALL NOT EXCEED 36 INCHES (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).
2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPliced TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY SEALED.
3. POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 12 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET. POSTS SHALL BE PRESERVATIVE TREATED.
4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
5. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
6. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
7. WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ITEM NO. 6 APPLYING.
8. THE TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE FILTER FABRIC.
9. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
10. FILTER FABRIC SHALL BE MIRAFI SILT FENCE, AMOCO SILT STOP (WIDTH 3'-6") • 1380 OR APPROVED EQUAL.

MAINTENANCE

1. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

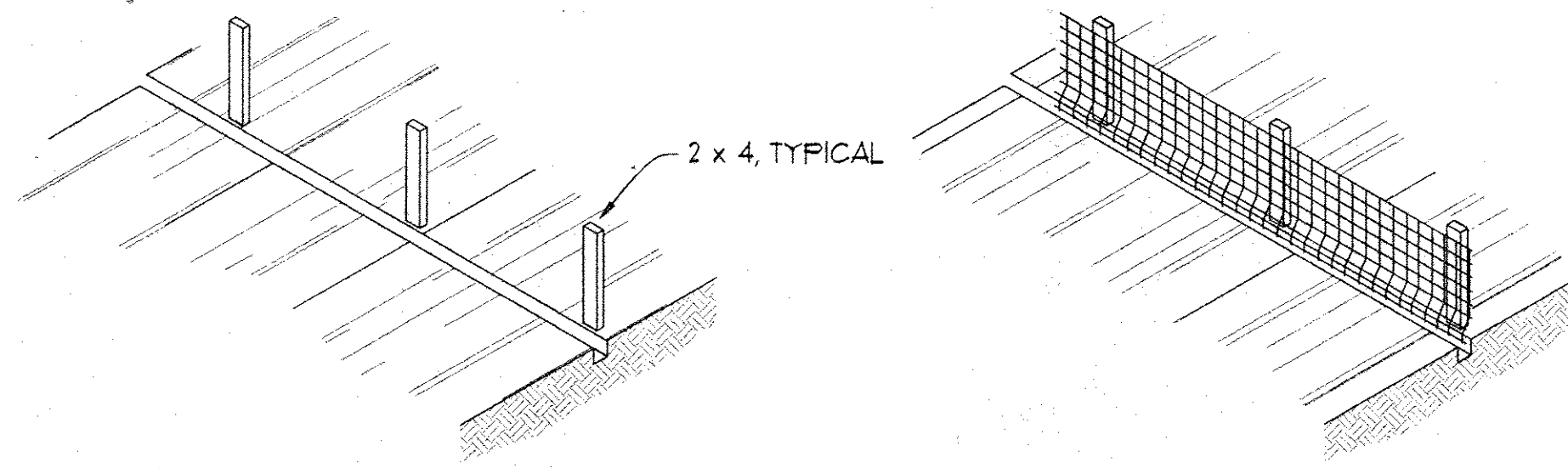
TEMPORARY SEDIMENT TRAP

1. THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ANY VEGETATION AND ROOT MAT. TO FACILITATE CLEANOUT, THE POOL AREA SHOULD BE CLEARED.
2. FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIAL.
3. THE EARTHEN EMBANKMENT SHALL BE SEEDED WITH TEMPORARY OR PERMANENT VEGETATION WITHIN 15 DAYS OF CONSTRUCTION.
4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED.
5. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE UP-SLOPE DRAINAGE AREA HAS BEEN STABILIZED.
6. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.

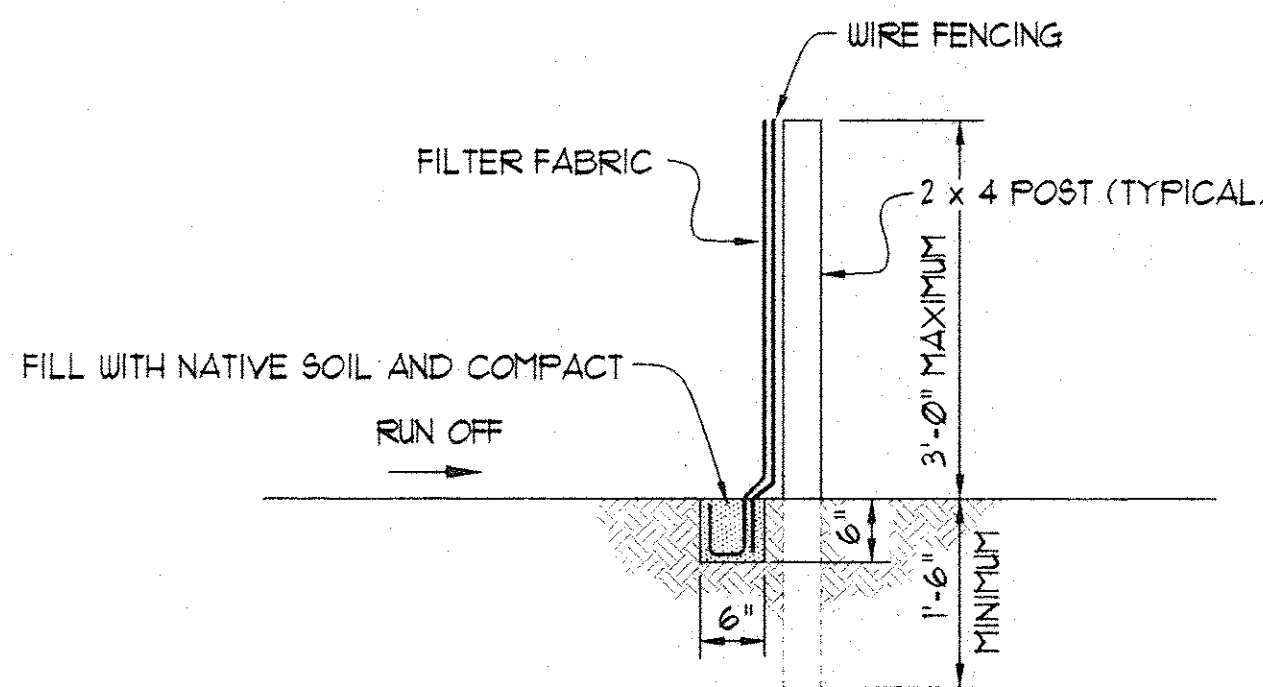
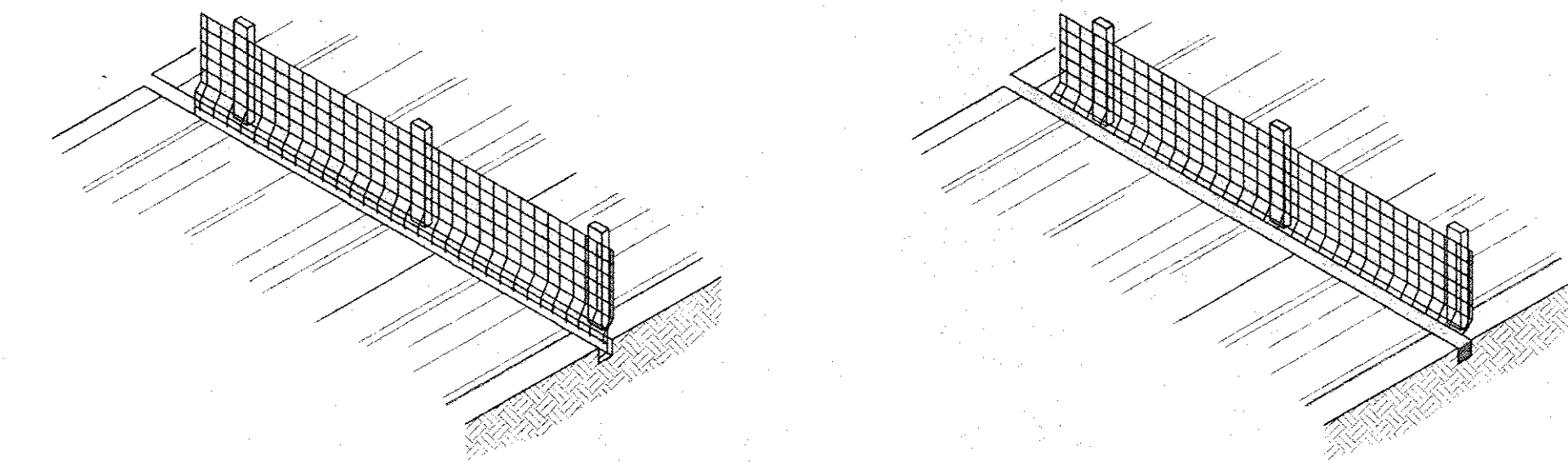
MAINTENANCE

1. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 DESIGN VOLUME OF THE TRAP. SEDIMENT REMOVED FROM THE BASIN SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.
2. THE STRUCTURE SHOULD BE CHECKED REGULARLY TO INSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT. THE HEIGHT OF THE OUTLET SHOULD BE CHECKED TO INSURE THAT ITS CENTER IS AT LEAST ONE FOOT BELOW THE TOP OF THE EMBANKMENT.

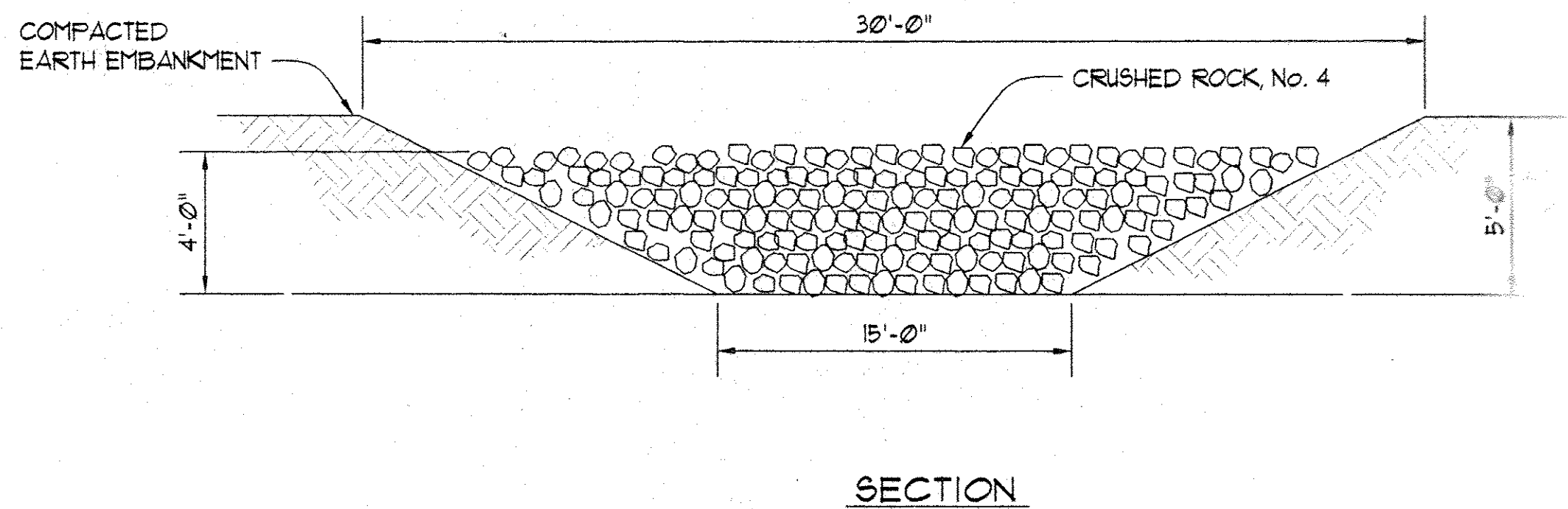
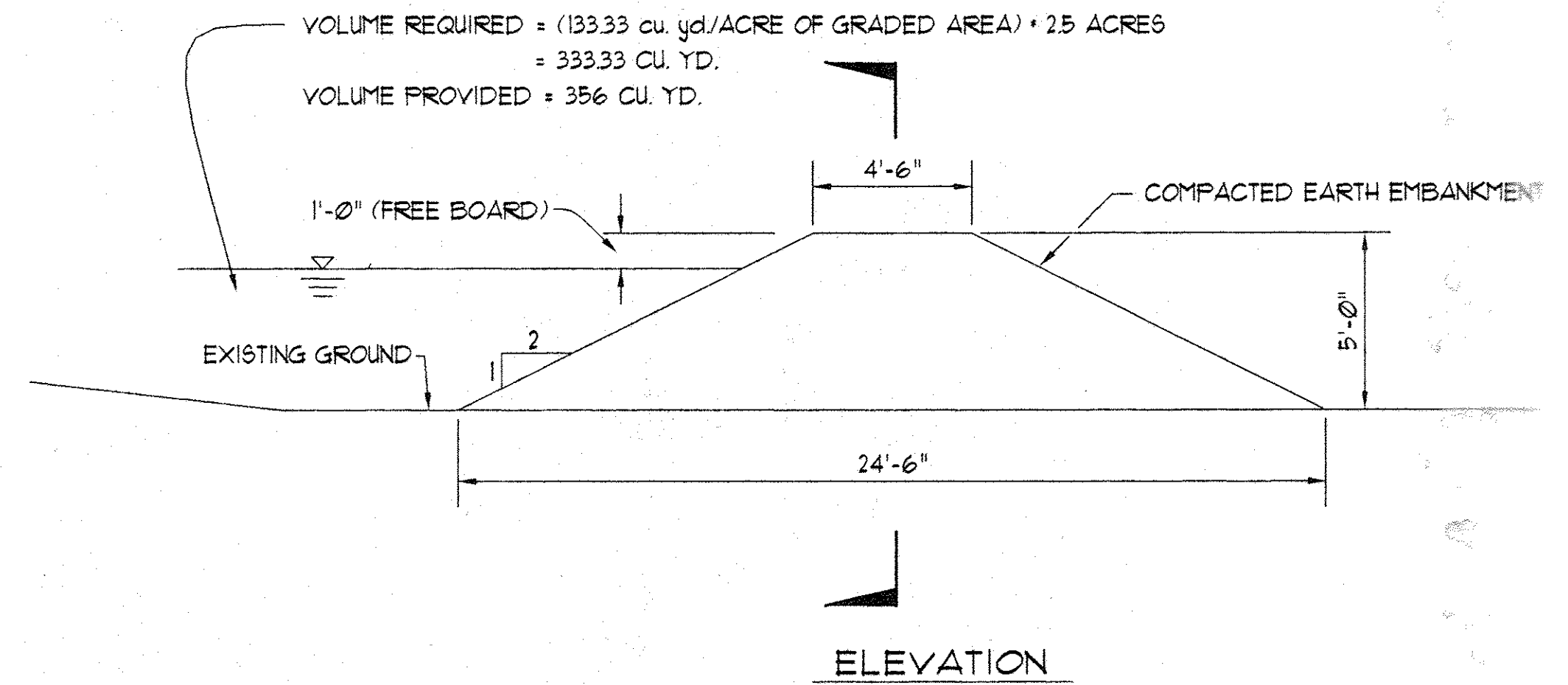
1. SET POSTS AND EXCAVATE A 4" x 4" TRENCH UP-SLOPE ALONG THE LINE OF POSTS.
2. STAPLE WIRE FENCING TO THE POSTS.



3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



1 SILT FENCE DETAIL  
C-6 NOT TO SCALE

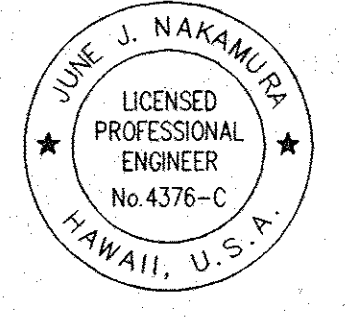


2 TEMPORARY SEDIMENT TRAP  
C-6 NOT TO SCALE

APPROVED BY:

CHIEF, DIVISION OF ENGINEERING, DPW  
(FOR EROSION CONTROL ONLY)

DATE

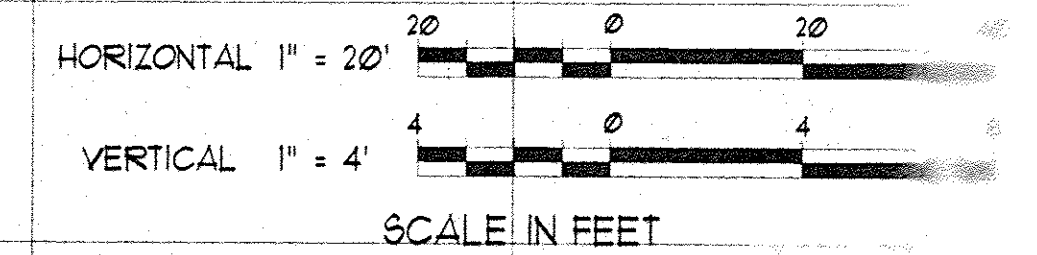
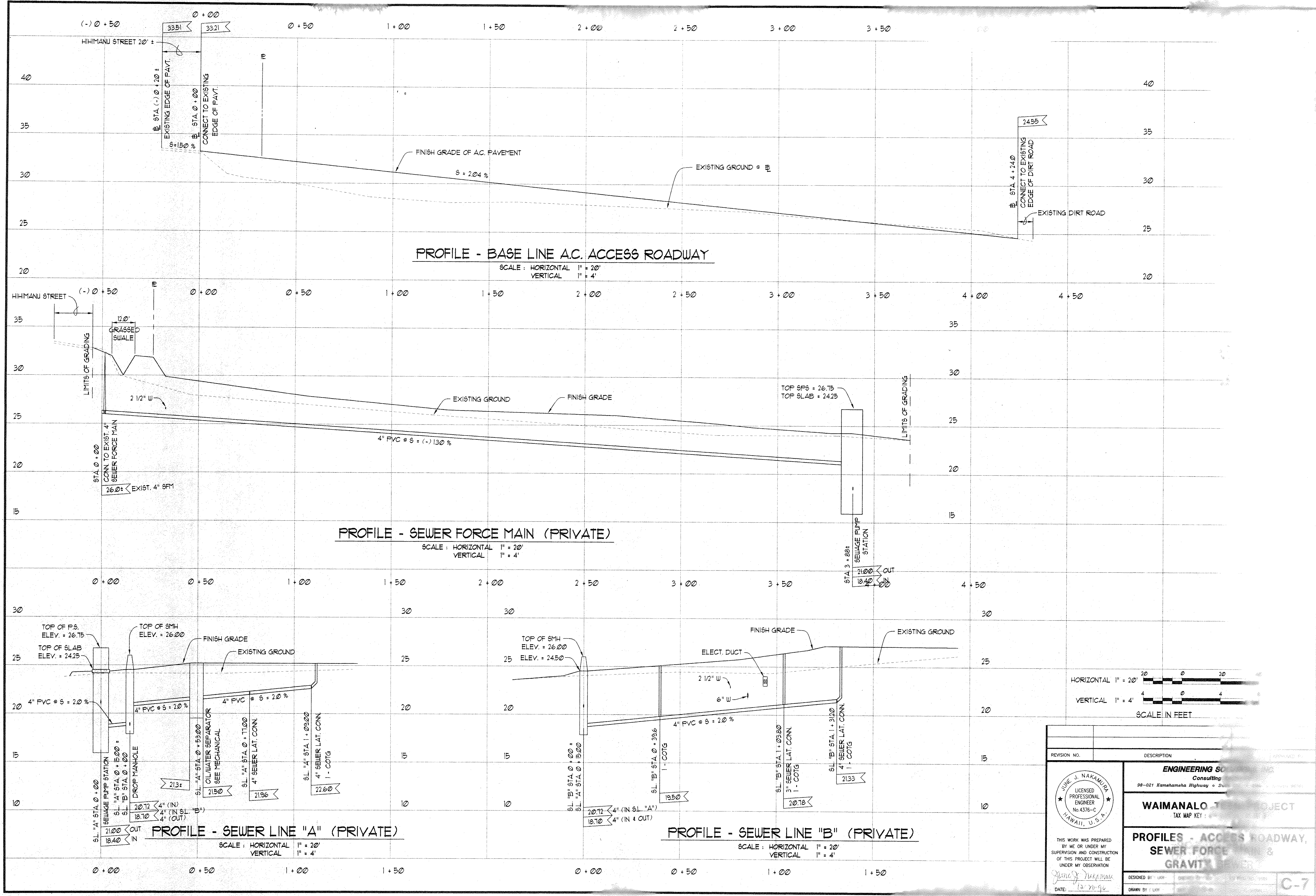
REVISION NO.	DESCRIPTION	APPROVED BY
		
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION		
DATE: 12.20.96		
ENGINEERING CONSULTING 98-021 Kamehameha Highway WAIMANALO PROJECT TAX MAP EROSION CONTROL DETAILS DESIGNED BY: USA DRAWN BY: USA C-6		



DATE: 09/19/96  
SCALE: AS SHOWN  
FILE: 9509

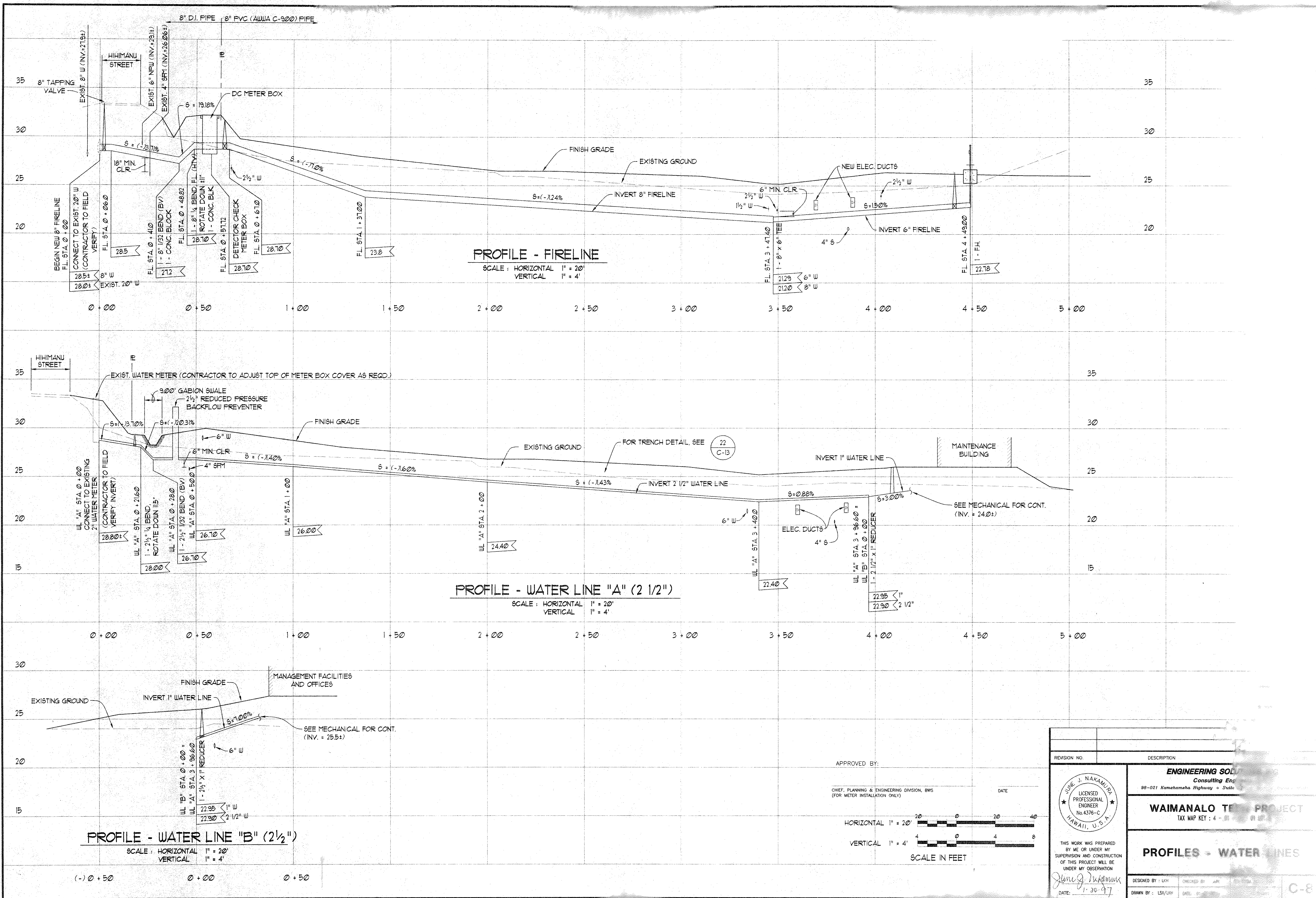
PM: LKH  
OPER: LKH

REVIS: 12/17/96



REVISION NO.	DESCRIPTION	APPROVED BY
<b>ENGINEERING SOLUTIONS</b> Consulting 98-021 Kamehameha Highway • Suite 200 • Honolulu, HI 96813		
<b>WAIMANALO PROJECT</b> TAX MAP KEY: 12-17-96		
<b>PROFILES - ACCESS ROADWAY, SEWER FORCE MAIN &amp; GRAVITY</b>		
DESIGNED BY: LKH DRAWN BY: LKH DATE: 12-17-96		
C-7		





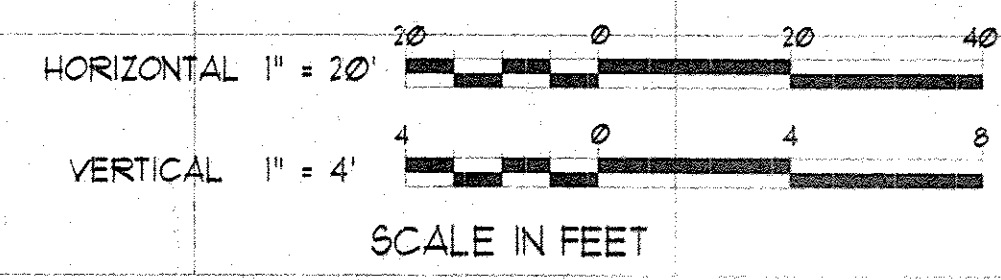
DATE: 11/05/96  
SCALE: AS SHOWN  
FILE: 9509

PM: LKH  
OPER: LSA/LKH  
REVISED: 01/20/97

APPROVED BY:

CHIEF, PLANNING & ENGINEERING DIVISION, BWS  
(FOR METER INSTALLATION ONLY)

DATE



REVISION NO.	DESCRIPTION
<b>ENGINEERING SOLUTIONS</b> Consulting Engineers 98-021 Kamehameha Highway • Suite 200 • Honolulu, HI 96813	
<b>WAIMANALO TRENCH PROJECT</b> TAX MAP KEY: 4 - 91	
<b>PROFILES - WATER LINES</b>	
DESIGNED BY: LKH	CHECKED BY: JPM
DRAWN BY: LSA/LKH	DATE: 1-20-97
FILE: _____ DRAWER: _____	

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*June J. Nakamura*

DATE: 1-20-97

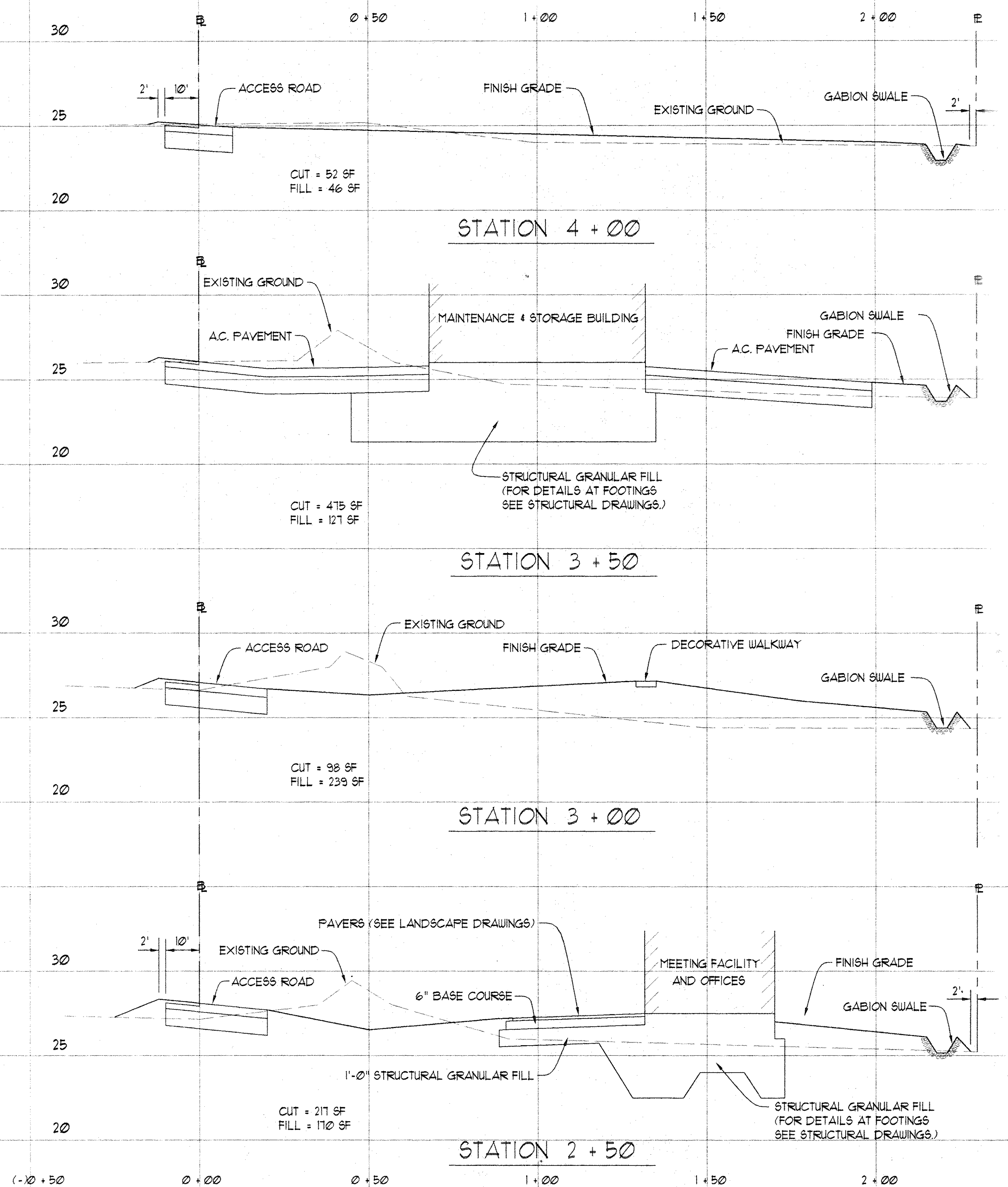
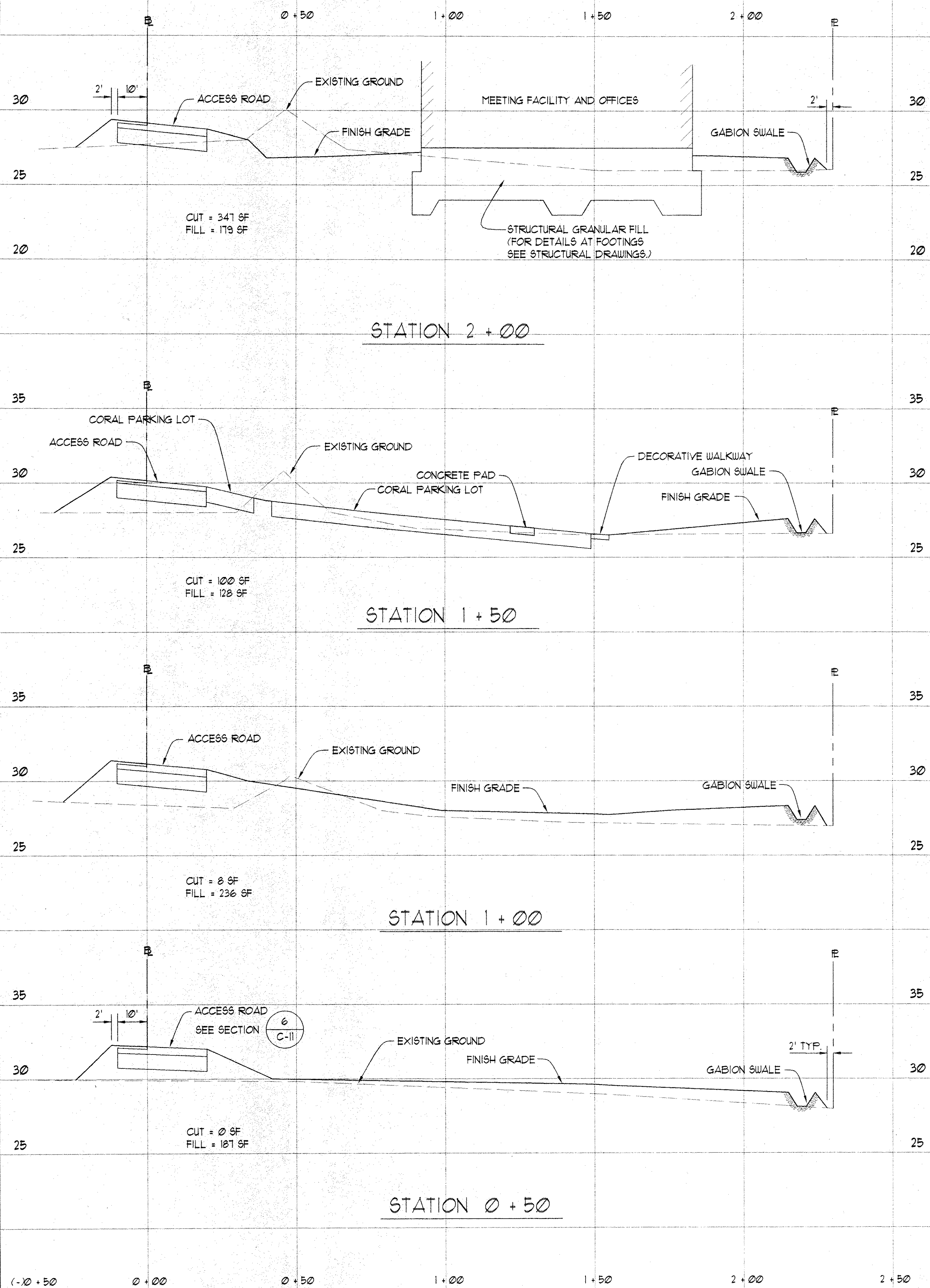
JUNE J. NAKAMURA  
LICENSED PROFESSIONAL ENGINEER  
No. 4376-C  
HAWAII, U.S.A.

C-8



DATE: 09/20/96  
SCALE: AS SHOWN  
FILE: 9509

PKC  
OPER: LSA/LKH  
REVISED: 12/17/96



APPROVED BY:

CHIEF, DIVISION OF ENGINEERING, DPW  
(FOR GRADING ONLY)

DATE:

HORIZONTAL 1" = 20'

VERTICAL 1" = 4'

SCALE IN FEET

REVISION NO.	DESCRIPTION

ENGINEERING SOLUTIONS  
Consulting Engineers  
98-021 Kamehameha Highway • Suite 211 • Honolulu, Hawaii 96813

**WAIMANALO TEEN PROJECT**  
TAX MAP KEY: 4 - 01 - 00 : 01 LOT 5

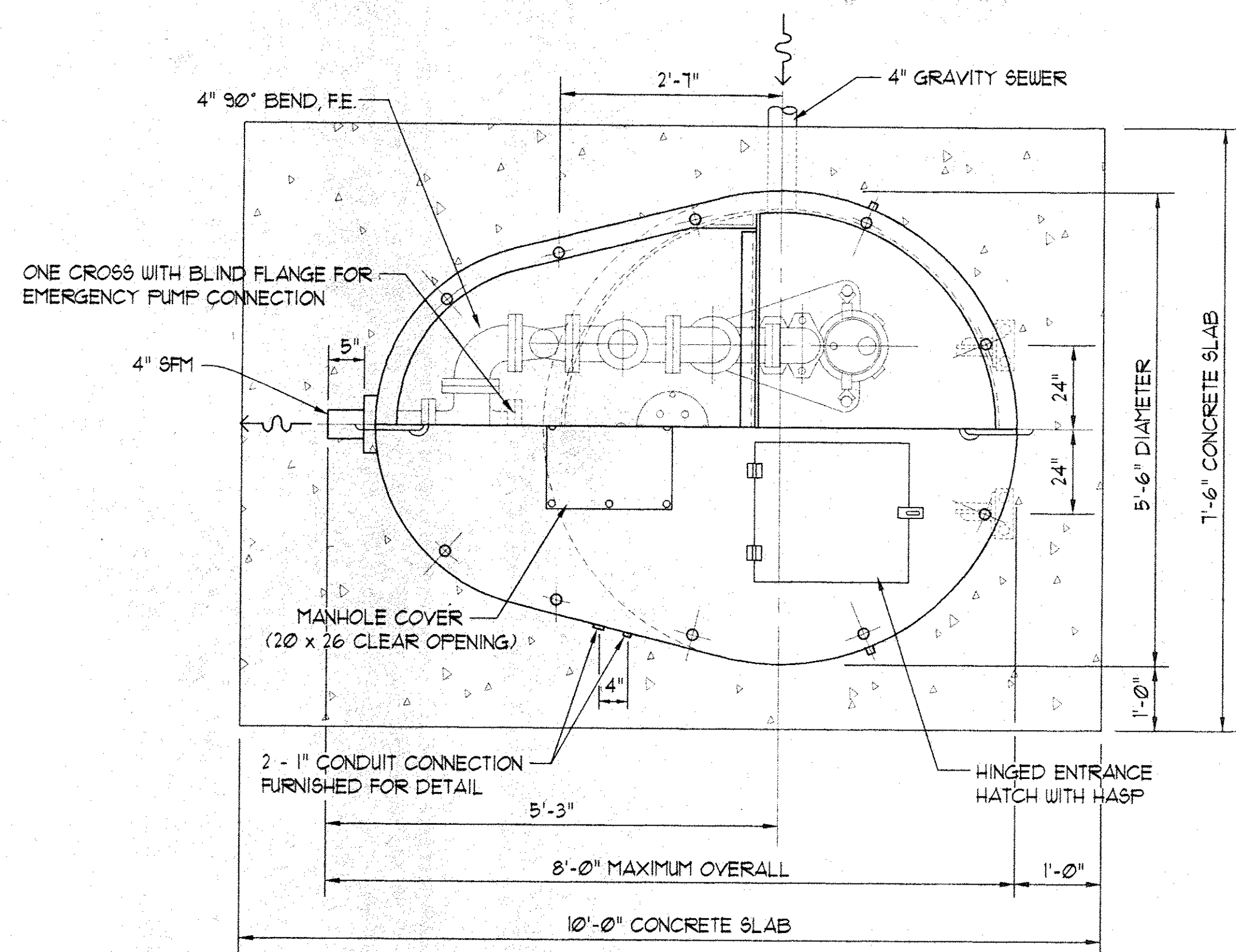
**CROSS SECTIONS**

DESIGNED BY: JAN  
CHECKED BY: REF  
DATE: 12-20-95  
SCALE: AS SHOWN

DRAWN BY: GC/LA  
DATE: 12-20-95  
SCALE: AS SHOWN

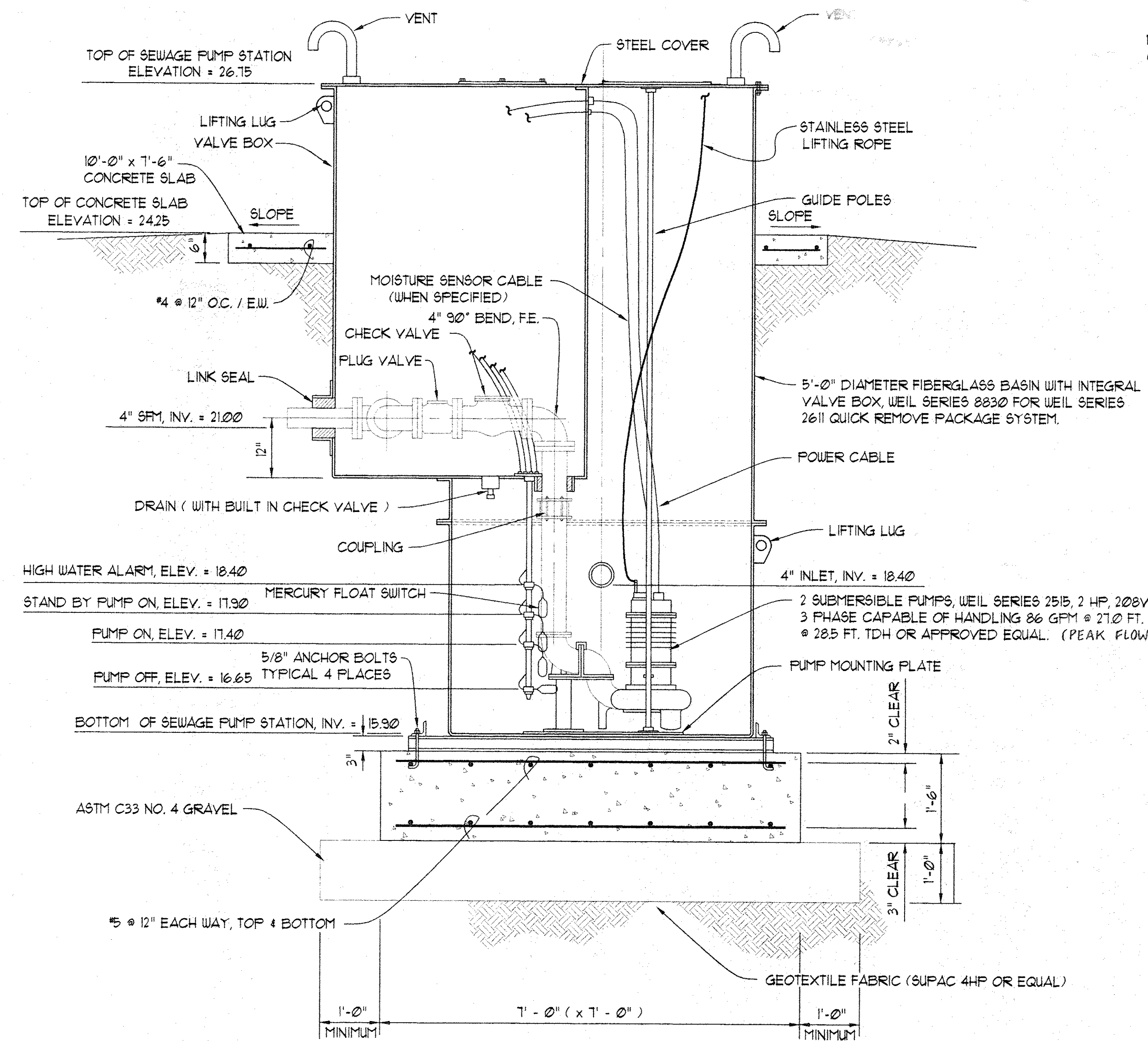
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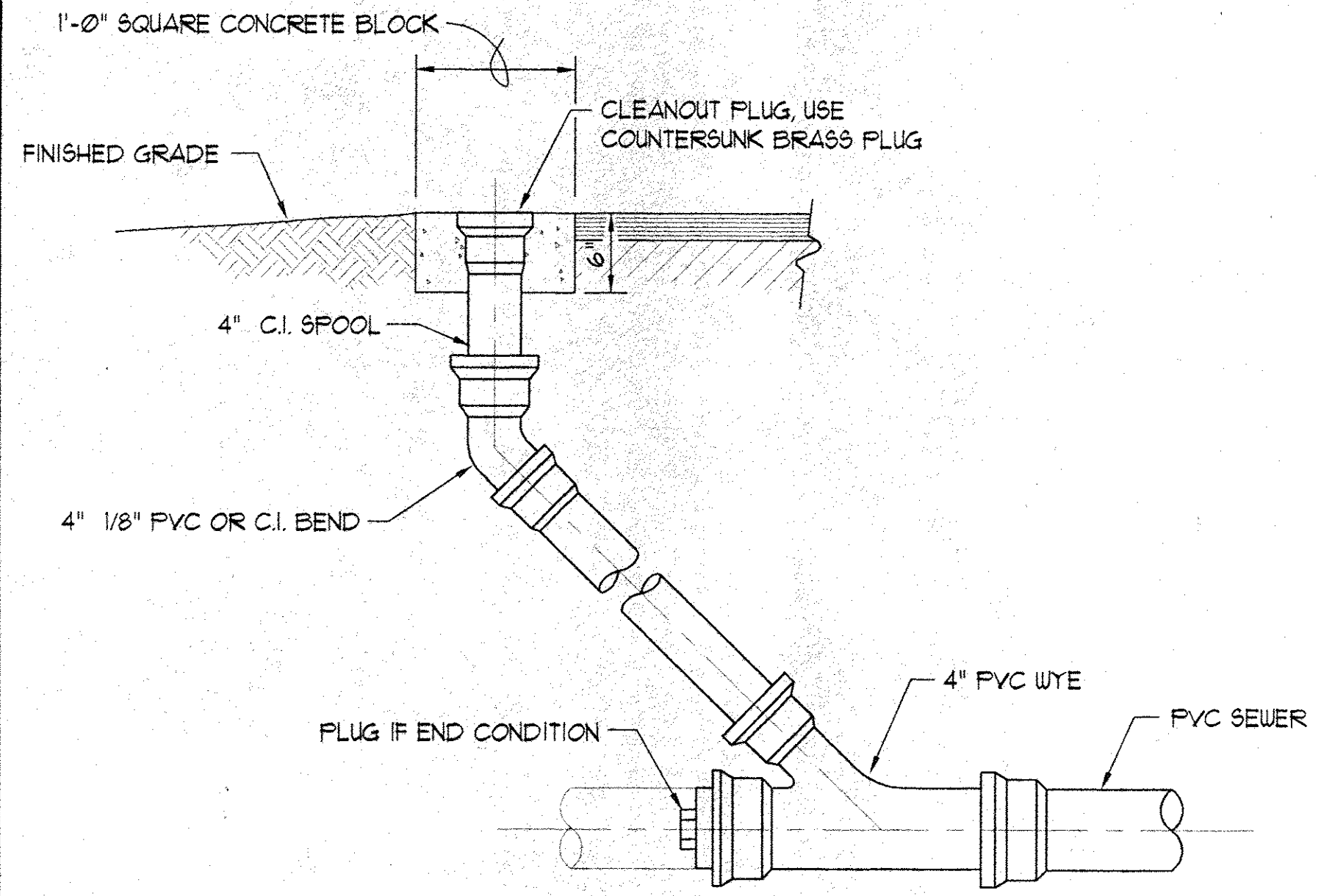
DESCRIPTION	ELEVATION (FT.)
TOP OF SPS	26.15
FINISH GRADE @ SPS	24.25
INV. 4" SPM	21.00
INV. 4" SEWER	18.40
HIGH WATER ALARM	18.40
STANDBY PUMP ON	17.30
LEAD PUMP ON	17.40
PUMPS OFF	16.65
BOTTOM OF SPS	15.30

PLAN

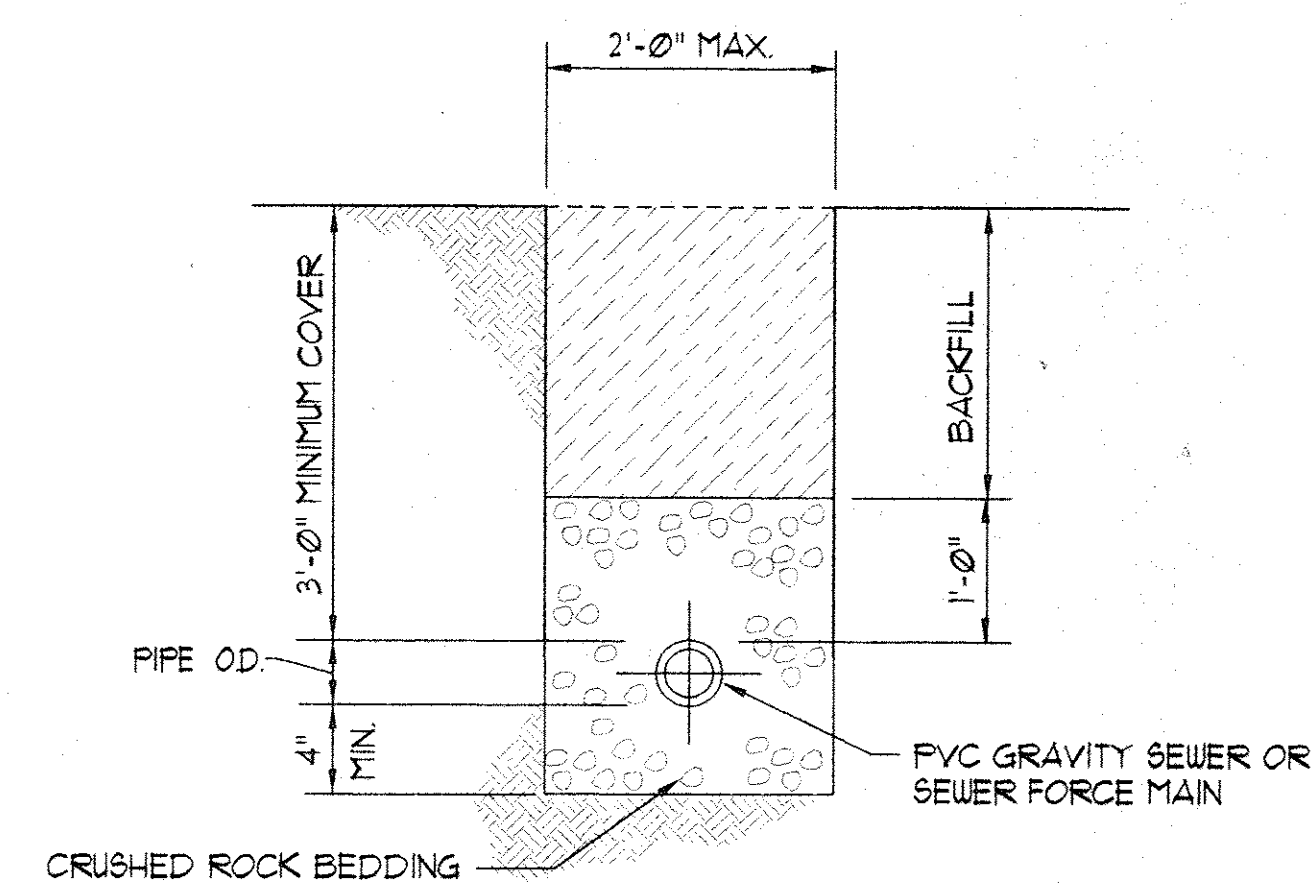


ELEVATION

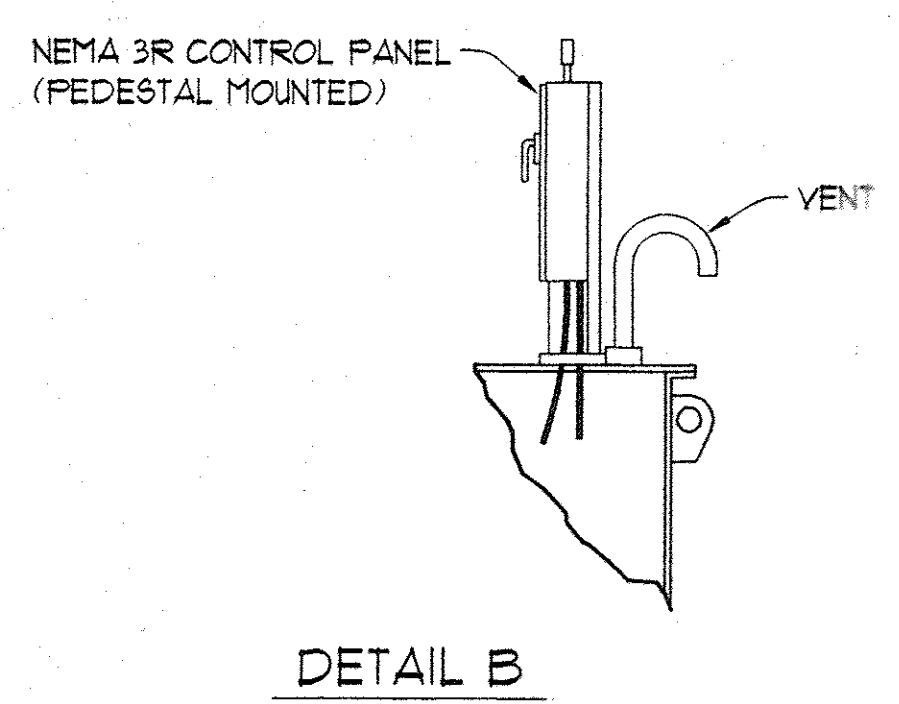
3 SEWAGE PUMP STATION (PRIVATE)  
C-10 NOT TO SCALE



4 CLEANOUT DETAIL  
C-10 NOT TO SCALE



5 SEWER TRENCH DETAIL  
C-10 SCALE: 3/4" = 1'-0"



DETAIL B

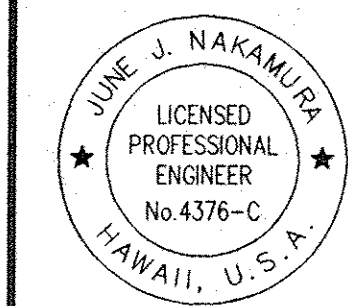
APPROVED BY:

CHEF, ENVIRONMENTAL MANAGEMENT DIVISION  
DEPARTMENT OF HEALTH

REVISION NO.	DESCRIPTION	DATE	APPROVED BY
<p><b>ENGINEERING SOLUTIONS, INC.</b> Consulting Engineers 98-021 Kamehameha Highway • Suite 211 • Aiea • Hawaii 96701</p> <p><b>WAIMANALO TEEN PROJECT</b> TAX MAP KEY: 4 - 01 - 09 : 01 LOT B</p> <p><b>SEWAGE PUMP STATION PLAN &amp; DETAILS</b></p>			
DESIGNED BY: JUN	CHECKED BY: REF	EST. PROJ. NO. 9500	C-10
DRAWN BY: LSA	DATE: 12-20-95	SHEET: 46 SHOWN	

DATE: 11/04/96  
SCALE: AS SHOWN  
FILE: 9509

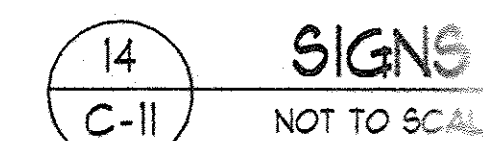
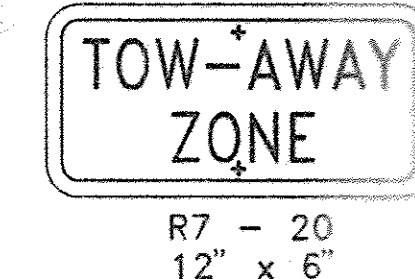
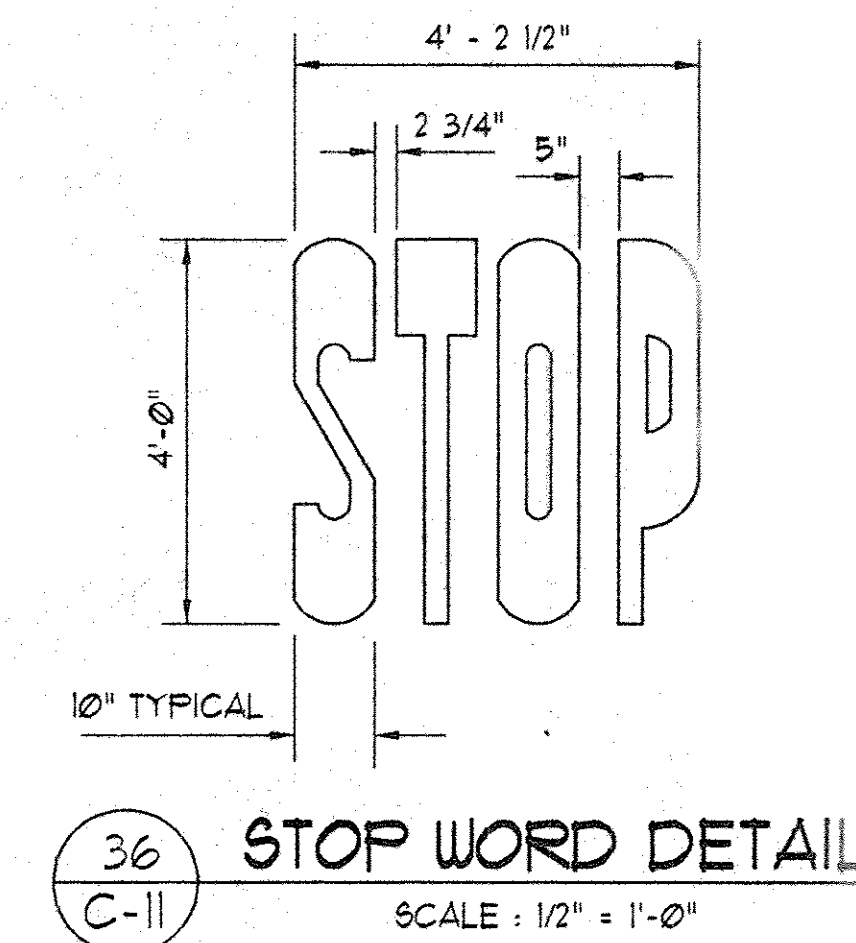
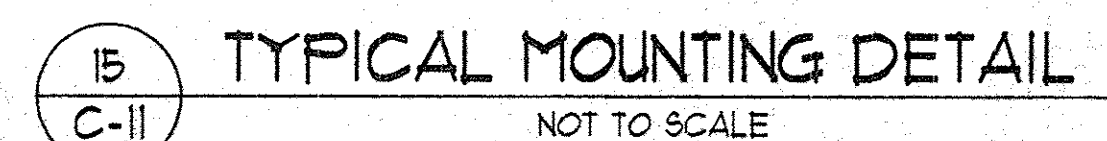
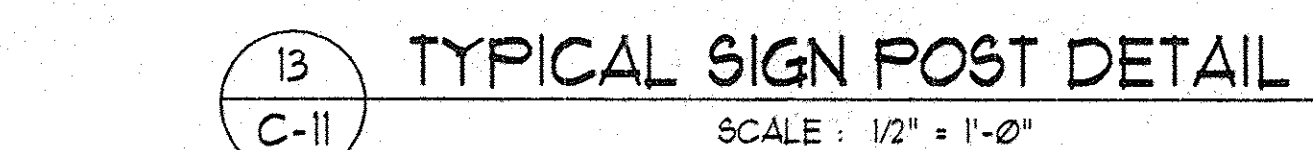
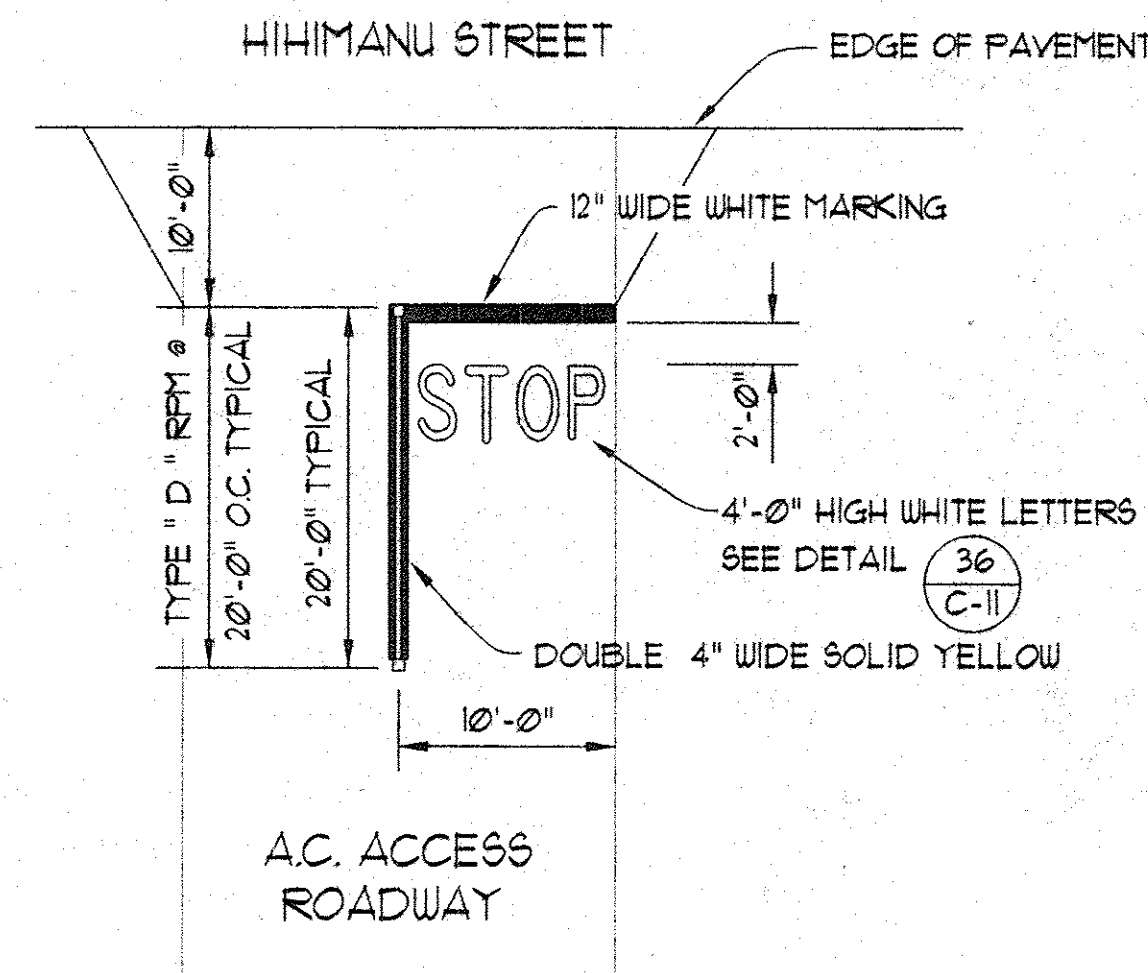
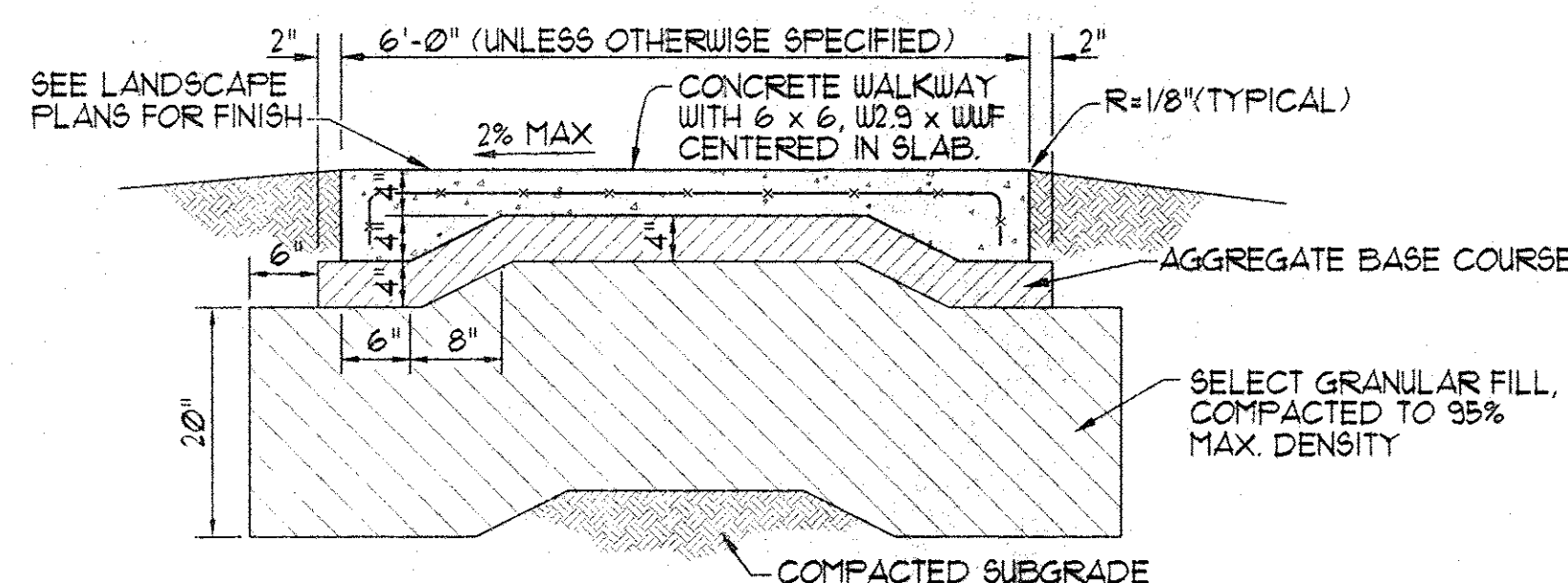
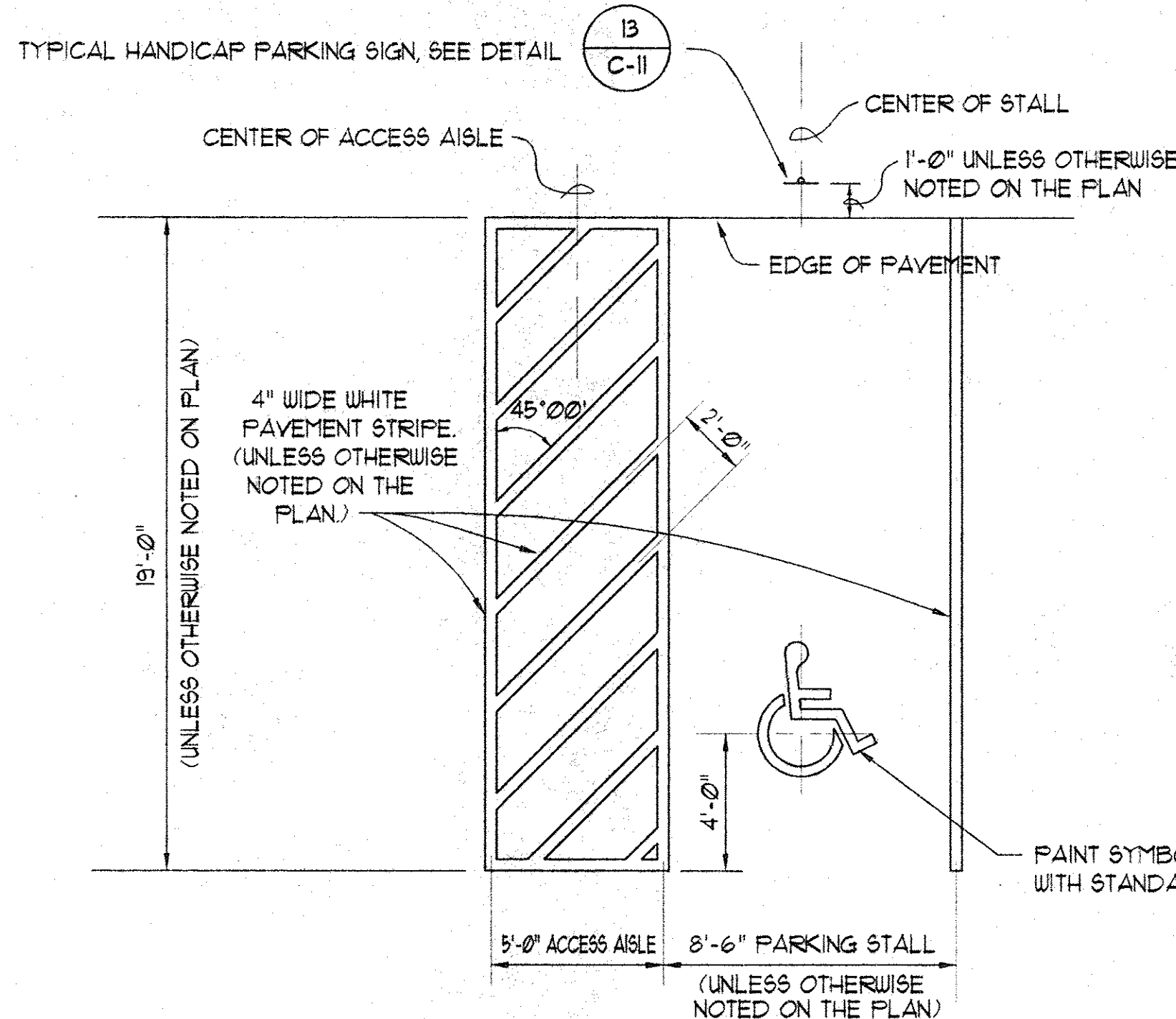
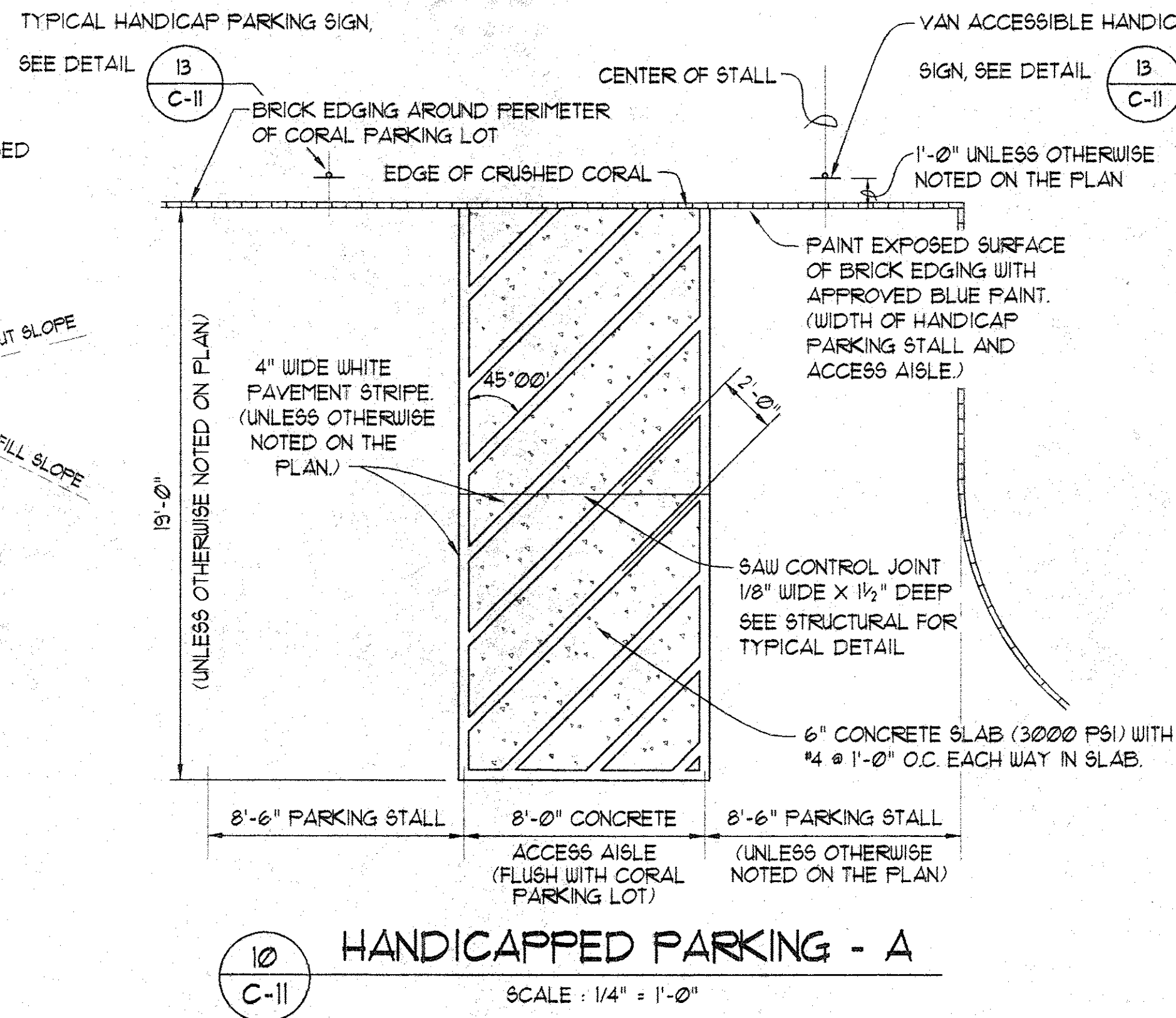
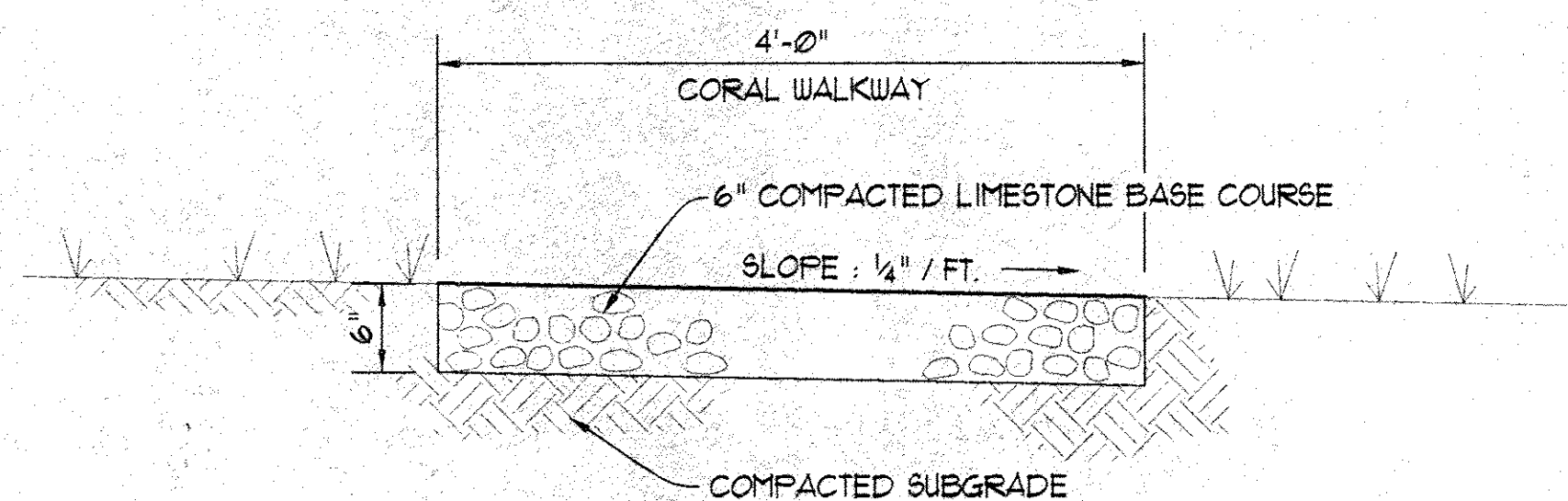
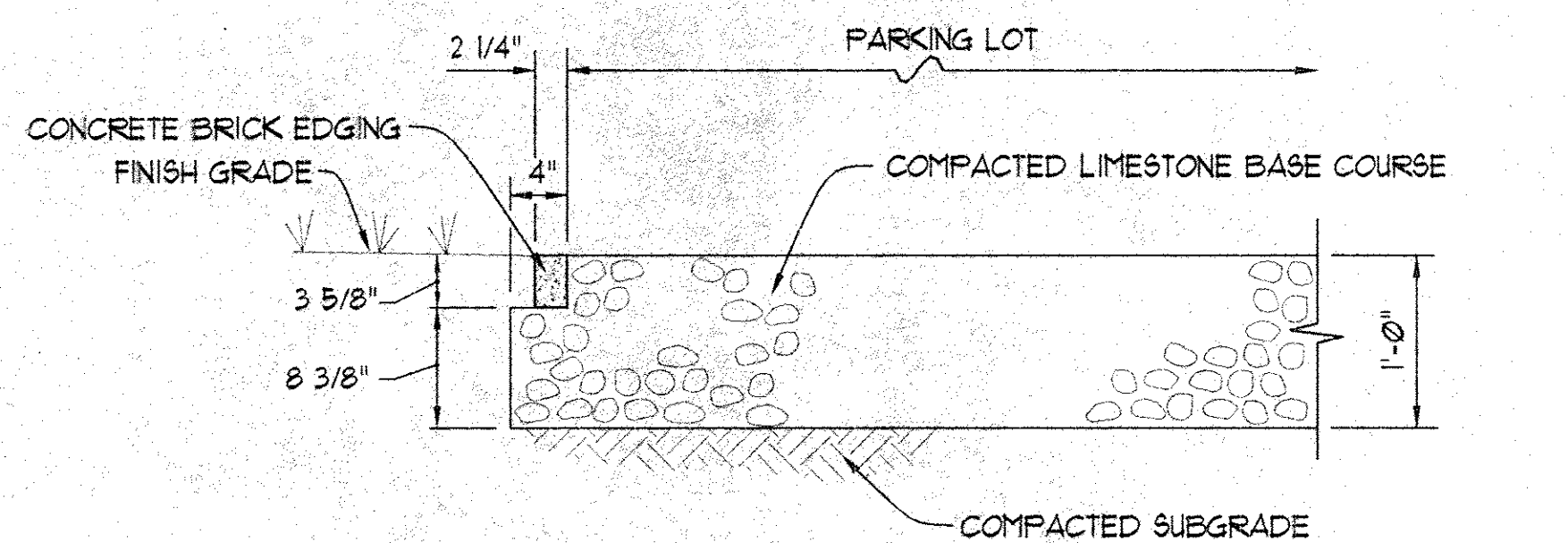
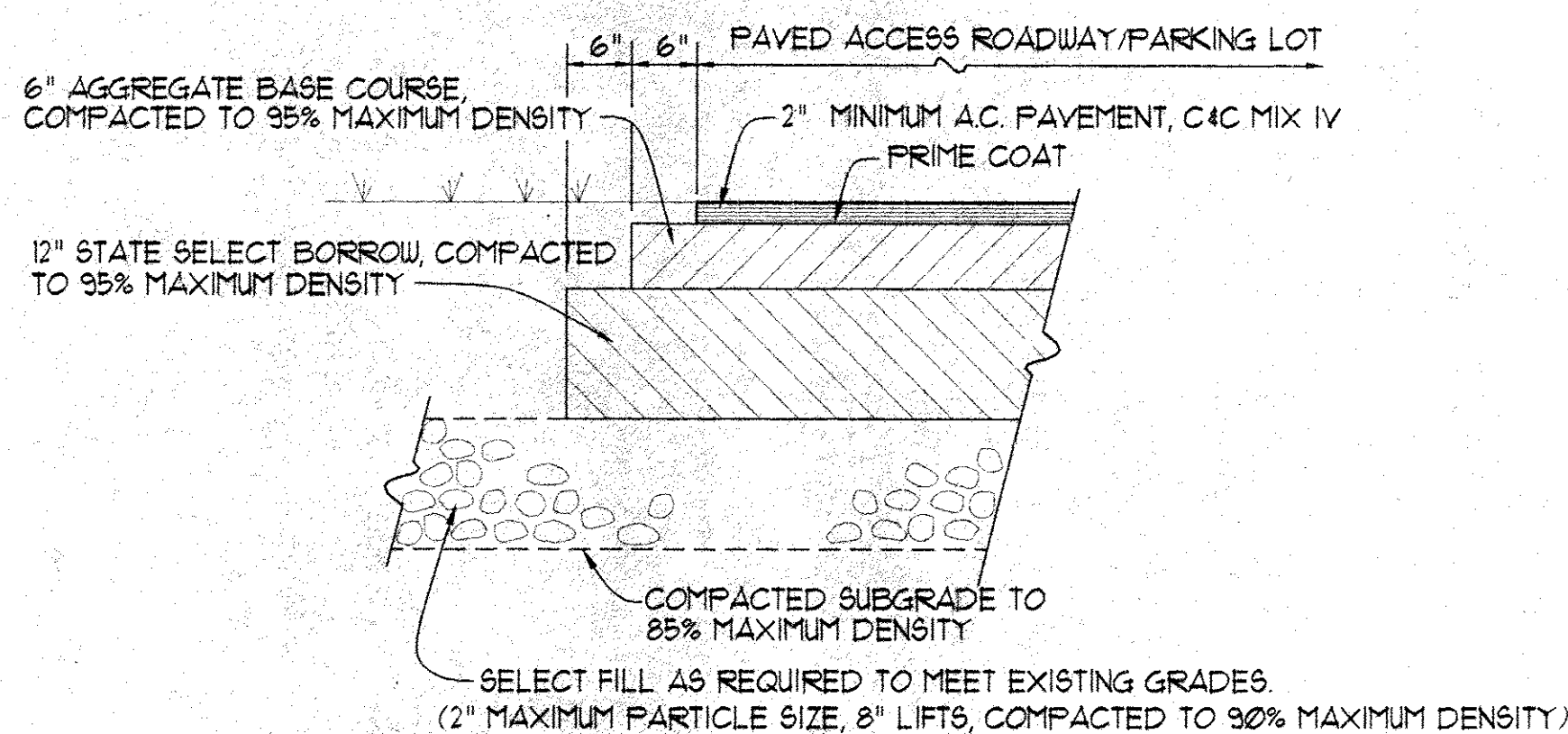
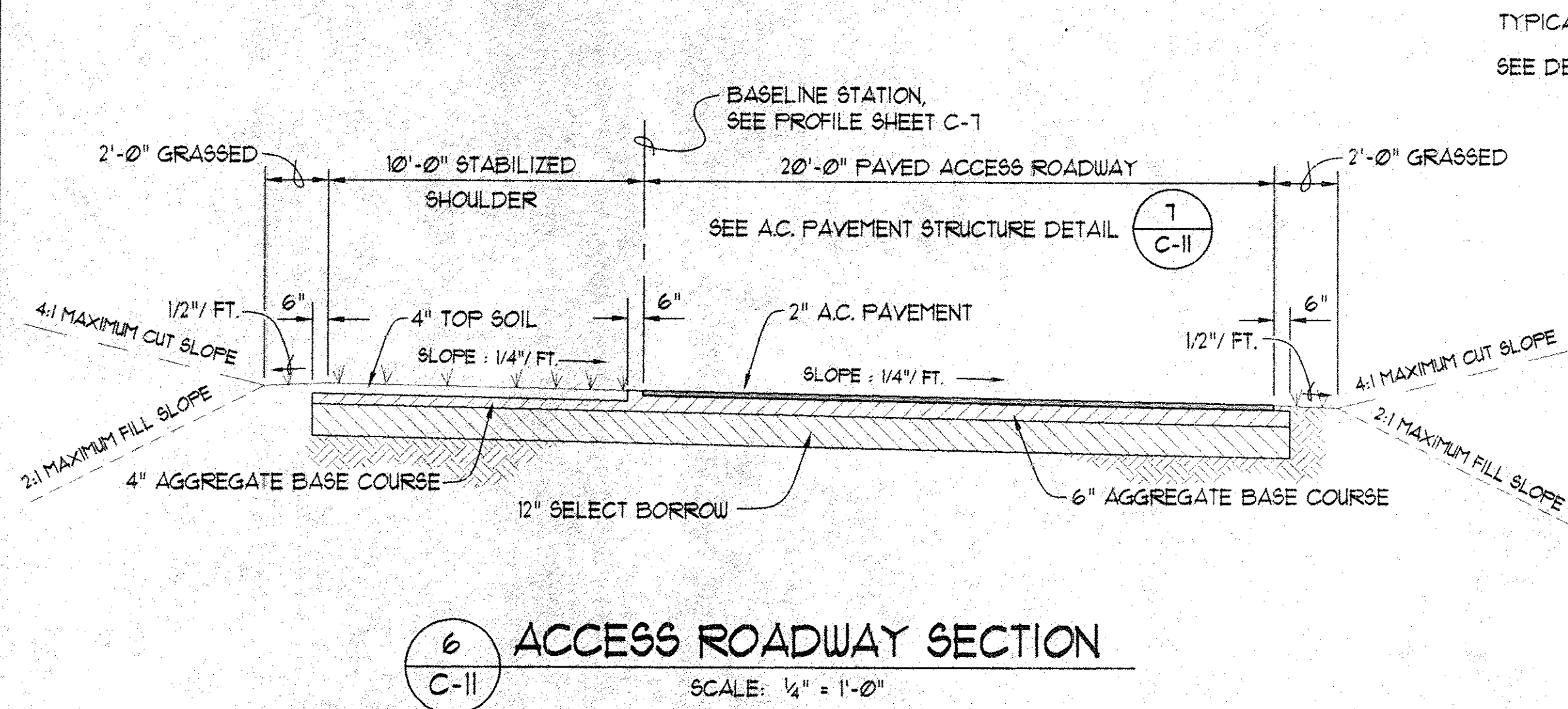
PM: LKH  
OPER: LSA  
REVISED: 12/17/96



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BY ME OR UNDER MY  
SUPERVISION AND CONSTRUCTION  
OF THIS PROJECT WILL BE  
UNDER MY OBSERVATION

FILE: DRAWER: FOLDER:





REVISION NO.	DESCRIPTION	DATE	APPROVED BY
1	WAIMANALO TEEN PROJECT	01-21-97	JUNE J. NAKAMURA
2	MISCELLANEOUS DETAILS	01-21-97	JUNE J. NAKAMURA
3	DESIGNED BY: JUN	CHECKED BY: REF	DATE: 01-21-97
4	DRAWN BY: LKH	SCALE: AS SHOWN	FILE: C-11

DATE: 09/18/96  
SCALE: AS NOTED  
FILE: 9509

PM: LKH  
OPER: LKH  
REVISED: 01/20/97